

Delta Environmental™

Pentair Water

**OREGON
ECOPOD-N**

FIXED FILM WASTEWATER TREATMENT SYSTEM
OPERATION AND MAINTENANCE MANUAL

Submitted to DEQ 9/23/15

DISTRIBUTOR AND HOMEOWNER NOTES

1. The Delta Environmental Model E50N has been tested by NSF International and conforms to NSF/ANSI Standard #40 & #245, class 1 effluent requirements. All other E series models are certified based on provisions in the standard for certification of a series of plants of the same model varying only in rated treatment capacity and materials of construction.
2. State and/or local regulations govern the installation and use of individual Aerobic Wastewater Treatment Systems and must be complied with.

Consult your local Sanitarian/Environmentalist prior to installation.

HOMEOWNER RECORDS	
S/N: _____	DATE: _____
INSTALLED BY: _____	
DISTRIBUTOR: _____	

This booklet provides operations, installation and warranty information on the **TREATMENT PLANT ONLY**. Other components which you may have, such as dosing equipment, drip irrigation or other components require additional operations booklets and carry separate warranties.

Be sure that you have all of the correct booklets for each of the component pieces in your system.

Contact your installer or call 1(800) 219-9183.

Post In A Service/Utility Area

ECOPOD-N TREATMENT SYSTEMS NOTICE

This home is served by an Individual Wastewater Treatment System. This system will serve you well only if it is properly maintained. Your system is comprised of

Your system is located

You should not build or fill over this area, or allow heavy traffic. Do not allow water to stand over this area, avoid using strong chemicals, cleaning fluids, etc., which will kill helpful bacteria in the system. You should also avoid flushing grease, food scraps, cigarette butts, sanitary napkins, and other inorganic waste down the drain.

You should have your system serviced in accordance with your service contract. Your service technician can advise you if you need more frequent or additional service.

To have your system serviced, or for additional information, call _____ at _____.

All of the details regarding system operation can be found in your homeowner's manual which you should have received at installation. If you did not receive a copy call 1-800-219-9183 and we will send you one at no charge.

Keep A Record Of Service Below:

DATE	SERVICE PERFORMED	SERVICE TECHNICIAN

A WORD ABOUT YOUR DELTA AEROBIC WASTEWATER TREATMENT SYSTEM AND HOW IT WORKS

The ECOPOD-N Fixed Film Wastewater Treatment System that you have purchased produces high quality water suitable for various disposal methods. It is used to enhance your on-site wastewater disposal system. You can be proud that in purchasing your ECOPOD-N System with a minimum amount of maintenance, you can directly contribute to a cleaner, safer environment.

All wastewater treatment systems of this type work by using bacteria that nature has provided. By pumping air into the system, the bacteria grow and thrive in much larger amounts than would occur naturally. The overpopulation of bacteria speeds up the process of breaking down domestic wastewater, making it safe for release into the environment. This entire process takes place within the walls of your specially designed, self-contained ECOPOD-N Treatment System.

The result of this process is a clear, odorless discharge, which meets or exceeds state water quality standards.

By following the few simple steps that you will find in this manual, your ECOPOD-N Fixed Film Wastewater Treatment System will provide you with years of service and the knowledge that you are doing your part to protect public health, our ground water, lakes, rivers, and streams.

The ECOPOD-N Fixed Film Wastewater Treatment System may be only one of several components required by your health department to provide a complete on-site system.

Process Description:

Water enters a pretreatment/settling tank similar to conventional septic tanks. In this tank, debris and settleable solids settle to the bottom and are decomposed by anaerobic bacteria.

The effluent enters the ECOPOD-N Fixed Film Wastewater Treatment System from the primary tank where it is introduced into an oxygen rich environment. In this oxygen rich environment, a colony of bacteria, called the biomass, develops and is capable of digesting (breaking down) biodegradable waste into carbon dioxide and water. This is a continuous process as long as the biomass is supplied with incoming wastewater and oxygen. The ECOPOD-N is a specially designed containment device that houses an engineered plastic media specifically designed to treat domestic wastewater. The ECOPOD-N is submerged in a tank of liquid, which operates as a dilution zone. An external air compressor is connected to the tanks to provide the necessary air to the system. There are no moving mechanical parts or filters in the ECOPOD-N.

In this system, conditions are favorable only to attached growth bacteria. This means that the most common disadvantages of other types of systems are eliminated. No rising sludge, floating sludge or washouts can occur.

In addition to CBOD and TSS reduction, ammonia nitrogen is one of the contaminants. Wastewater nitrification of the ammonia and denitrification of nitrates occur within the bacteria masses. A 50%+ removal rate of total nitrogen is common without any type of recirculation or cycling of the blower.

HOMEOWNER CARE AND OPERATION INSTRUCTIONS

The ECOPOD-N Fixed Film Wastewater Treatment System has been designed and built to provide long term, reliable and efficient service.

Once the unit has been installed, (see installation instructions) the unit will operate with a minimum amount of attention.

Please reference the system's Data Plates that are located on the tank, air pump, and the alarm panel in the event that a problem arises or service is required.

The following should be accomplished as checks for system failure:

Daily

- Observe the warning device, which comes on when the power to the air pump has been interrupted, when the air supply system has malfunctioned, or there is a high water level in the treatment plant. If the alarm is activated, check for a blown fuse or thrown circuit breaker. Check the air pump to be sure it is operating. Once accustomed to the soft humming sound of a properly operating unit, any unusual noise is an indication of malfunction. If an unusual noise is detected or total failure is observed, call an authorized Delta dealer/distributor.

Weekly

- Check the treatment plant for offensive odor. If such a condition should develop, call an authorized Delta dealer/distributor.

Every 3 Months

- **The air filter on the air pump should be cleaned.** Rinse with warm water if necessary. (See installation instructions). Do not use oil or other solvents.

Every 6 Months

- Inspect and make any necessary adjustments to mechanical and electrical components.
- Inspect effluent quality's color, turbidity and check for any odor.
- Take a sample from the reactor tank to check the sludge level described in the "Solids Removal" section.
- **The homeowner must be notified in writing if any improper operation is observed and can not be corrected at the time of service.**

Note

- To keep maintenance to a minimum and ensure high effluent quality, see the section labeled; "The following items should NOT be used or disposed into the system".

THE FOLLOWING SHOULD NOT BE USED OR DISPOSED INTO THE SYSTEM

- Greases, Fats, Oils, Pesticides, Herbicides, or any other toxins.
- Garbage disposal should be used sparingly. Dispose of food waste, grease, etc., in the solid waste bin. Food waste represents additional loading the Fixed Film Wastewater Treatment System would have to digest, increasing pump out intervals.
- Paints, household chemicals, automobile fluids, etc. - do not discard mop water into the system.
- Non-Biodegradable items such as cigarette butts, disposable diapers, feminine hygiene products, condoms, hair, coffee grounds, rags, paper towels, bandages, latex, plastic or metallic objects, etc.
- Wash loads must be spread out over the week. Once a week multiple loads or half loads are not recommended.
- Citrus products, oranges, lemons, grapefruit, etc.
- Additives for septic systems – they do no more harm than good.
- Hydraulic overload due to excessive water from other sources.
- Home Brewery Waste, Strong Medicines, Antibiotics and Anti-Bacterial soaps should be avoided.
- Strong disinfectants or bleaches. Laundry products such as: Lysol, Pine-Sol, Tidy Bowl, or discharge from water softeners.
- Recommended detergents are: powdered, low-sudsing, low phosphates and biodegradable, washing soda ingredients such as Gain, Arm & Hammer, Fresh Start, and Dash Bright. Fabric softener dryer sheets are recommended.
- Recommended cleaning products are: Non-chlorine, biodegradable and non-toxic such as Ivory & Sunlight dish washing liquids, Cascade & Sunlight powdered dishwasher detergents, Comet & Biz powdered cleaners, baking soda.

SYSTEMS REQUIRING PUMP OUTS DUE TO THE ABOVE VIOLATIONS ARE NOT COVERED BY THE WARRANTY.

The ECOPOD-N Fixed Film Wastewater Treatment System is designed to handle domestic wastewater; nothing else should go into it. For anything other than domestic wastewater contact: Delta Environmental.

WARNINGS

- The proper operation of this or any other home sewage system depends upon proper organic loading and the life of the microorganisms inside the system. Delta is not responsible for the in-field operation of a system, other than the mechanical and structural workings of the plant itself. Delta cannot control the amount of harsh chemicals or other harmful substances that may be discharged into the system by the occupants of a household, we can only provide a comprehensive owner's manual that outlines substances that should be kept out of the system.
- Hydraulic overloading (flows in excess of design flow) may cause the sewage treatment system not to perform to the fullest capabilities.
- Ants have been shown to be destructive to the air pump. Regular care should be taken to prevent infestation of ants near the system. Damage or destruction by ants is not covered under manufacturer's warranty.
- Your State or Local Health department may require other pieces of equipment to function separately or in conjunction with equipment manufactured by Delta Environmental. Delta is not responsible for the mechanical or electrical safety of equipment it does not manufacture or supply with its Fixed Film Wastewater Treatment System. Particular care should be used in evaluating the electrical or mechanical safety of equipment manufactured by others. This may include but is not limited to electrical control panels or air pumps.
- If electrical service has not been installed for checking air distribution system during installation, and if an extension cord is used to test the air pump, NEVER leave the extension cord plugged in. Remove it after testing is completed.
- Due to a possible fire hazard, DO NOT plug into service equipment on power pole and DO NOT use extension cords. All electrical work performed by the installer or others must be in accordance with the National Electrical Code and Local Codes.

SOLIDS REMOVAL

The ECOPOD-N Fixed Film Wastewater Treatment System is designed to provide years of trouble free operation.

Determination of the need for solids removal can be done through a simple test. A one quart sample should be pulled from the reactor tank and can be done so through the 4" sample port. Allow the sample to settle in a clear one quart jar for one hour. If the solids content exceeds 25 percent of the total volume after settling or more than 13 inches of sludge, the treatment plant should be pumped out. Call your local authorized sewage disposal service to have the tank contents pumped out and disposed of properly.

The method of pumping out should be as follows:

- Remove all of the solids from both the reactor tank and primary tank
- The air pump should be in the off position

After the pump-out process is complete, fill the tank with fresh water to normal operating level.

Refer to the "Installation Procedure" to get the treatment plant back into operation.

Should indication of improper operation be observed at any point in time, contact your local authorized Delta dealer/distributor.

NOTE: THE COST ASSOCIATED WITH PUMPING THE TREATMENT SYSTEM IS NOT COVERED UNDER WARRANTY AND IS NOT INCLUDED IN THE SERVICE POLICY.

SEASONAL USE GUIDELINES OF ECOPOD-N FIXED FILM WASTEWATER TREATMENT SYSTEM

These guidelines are for conditions as outlined below and apply for systems that are not in use for periods of time indicated. Site conditions not covered by the following must be forwarded to Delta for recommended guidelines to meet the particular site conditions.

1. System not in use for more than one month and less than three months. Electrical power is left on and there are no frost conditions.
 - Leave air pump on and system running
2. System not in use more than three months. Electrical power is turned off and there are not frost conditions.
 - Remove all materials and liquid from tank
 - Refill with clean water
 - Turn off air pump.
3. System not in use more than three months. Electrical power is on and there are not frost conditions.
 - Leave air pump on and system running; OR
 - Remove all material and liquid from tank
 - Refill with clean water
 - Turn off air pump
4. System not in use. Electrical power is turned off and there are frost conditions.
 - Remove all material and liquid from tank
 - Turn off air pump
 - If high ground water is present, fill with clean water
 - If no ground water is present, leave tank empty

UNDER NO CIRCUMSTANCES SHOULD THE AIR PUMP BE TURNED OFF FOR MORE THAN A FEW DAYS WITHOUT REMOVING TANK CONTENTS

SAMPLING REQUIREMENTS

An ECOPOD-N Fixed Film Wastewater Treatment System in order to meet the State of Oregon treatment standard 1 must provide the following effluent quality of:

30-day average Biochemical Oxygen Demand (CBOD5) of less than 17 mg/l (or ppm),
30-day average Total Suspended Solids (TSS) of less than 20 mg/l (or ppm),

Taking Effluent Samples

Samples must be taken in the effluent discharge line or an effluent pump or after the disinfection device. We recommend allowing the effluent to flow through the discharge pipe for a minimum of 2 minutes before taking the sample. This will allow any solids to be flushed out that might have accumulated in the discharge pipe. Please find attached drawing of a Sample Port.

SAMPLING SHOULD BE TAKEN BY A LOCAL CERTIFIED TESTING LABORATORY OR BY FOLLOWING THEIR PROCEDURES. THE FOLLOWING RECOMMENDED GUIDELINES MAY BE USED IF LOCAL PROCEDURES ARE NOT AVAILABLE.

Biochemical Oxygen Demand (BOD)

Samples for BOD analysis may degrade significantly during storage between collection and analysis, resulting in low BOD values. Minimize reduction of BOD by analyzing the sample promptly or by cooling it to near freezing temperature during storage. However, even at low temperature, keep the holding time to a minimum. Warm the chilled samples to 20°C before analysis; some storage time can be used to accomplish this conveniently.

- **Grab Samples:** If analysis is begun within two hours of collection, cooling is unnecessary. If analysis is not started within two hours of sample collection, keep sample at or below 4°C from the time of collection. Begin analysis within six hours of collection; when this is not possible because the sampling site is distant from the laboratory, store at or below 4°C and report length and temperature of storage to the lab. In no case, start analysis more than 24 hours after grab sample collection. When samples are to be used for regulatory purposes, make every effort to deliver samples for analysis within six hours of collection.

Total Suspended Solids (TSS)

Use resistant-glass or plastic bottles, provided that the material in suspension does not adhere to container walls. Begin analysis as soon as possible because of the impracticality of preserving the sample. Refrigerate sample at 4°C to minimize microbiological decomposition of solids.

Phosphorous

If phosphorus forms are to be differentiated, filter samples immediately after collection. Preserve by freezing at or below -10°C. Add 40 mg/HgCl₂/L to the samples, especially when they are to be stored for long periods. Do not add either acid or 2CHCl₃ as a preservative when phosphorus forms are to be determined. If total phosphorus alone is to be determined, add 1 mL concentration HCL or freeze without any additions.

Do not store samples containing low concentrations of phosphorus in plastic bottles unless kept in a frozen state because phosphates may be adsorbed onto the walls of plastic bottles.

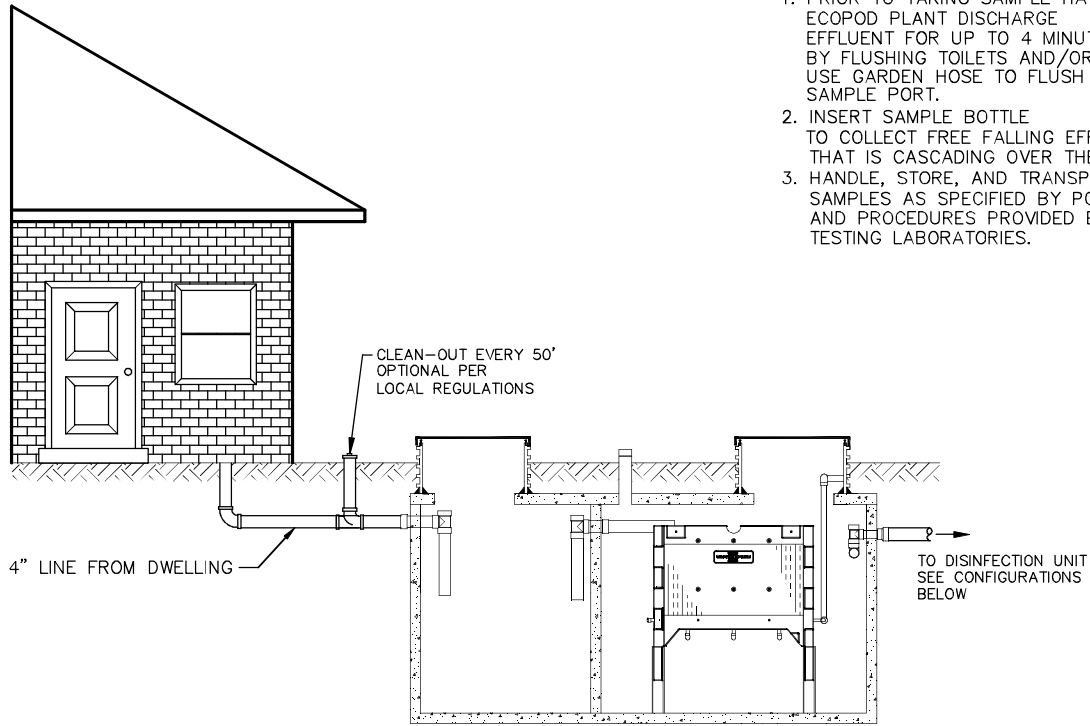
Rinse all glass containers with hot diluted HCL, then rinse several times in distilled water. Never use commercial detergents containing phosphate for cleaning glassware used in phosphate analysis.

Ammonia Nitrogen

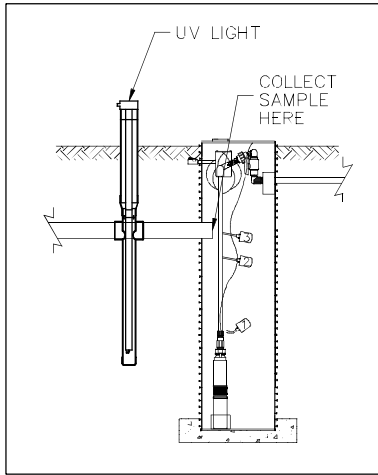
Most reliable results are obtained from fresh samples. Destroy residual chlorine immediately after sample collection to prevent its reaction with ammonia. If prompt analysis is impossible, preserve samples with 0.8 mL concentration H_2SO_4 /L sample and store at $4^{\circ}C$. The pH of the acid-preserved samples should be between 1.5 and 2. Some wastewater may require more concentration H_2SO_4 to achieve this pH. If acid preservation is used, neutralize samples with NaOH or KOH immediately before making the determination.

SAMPLE PROCEDURES:

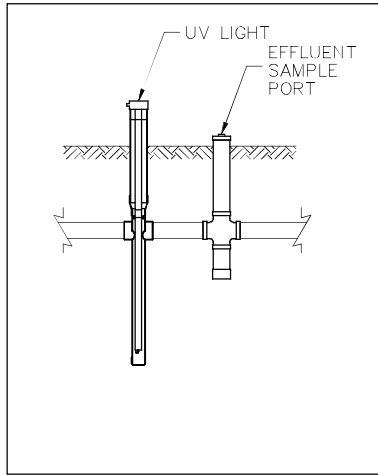
1. PRIOR TO TAKING SAMPLE HAVE ECOPOD PLANT DISCHARGE EFFLUENT FOR UP TO 4 MINUTES BY FLUSHING TOILETS AND/OR USE GARDEN HOSE TO FLUSH OUT SAMPLE PORT.
2. INSERT SAMPLE BOTTLE TO COLLECT FREE FALLING EFFLUENT THAT IS CASCADING OVER THE EDGE.
3. HANDLE, STORE, AND TRANSPORT SAMPLES AS SPECIFIED BY POLICIES AND PROCEDURES PROVIDED BY THE TESTING LABORATORIES.



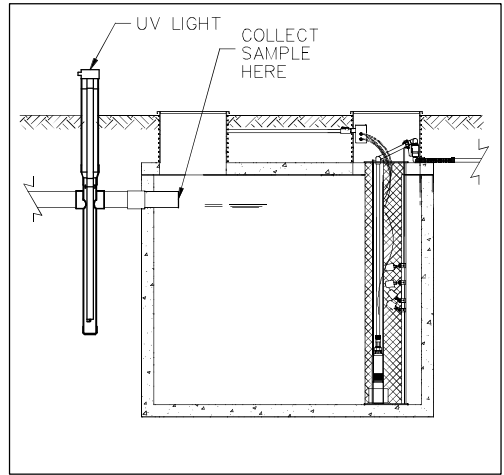
SAMPLE PORTS FOR UV CONFIGURATIONS



CONFIGURATION 1



CONFIGURATION 2



CONFIGURATION 3

REV.	DATE	REVISION DESCRIPTION	BY

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SAMPLE PORTS FOR UV CONFIGURATIONS

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INSTALLATION INSTRUCTIONS ONLY FOR USE BY CERTIFIED, LICENSED INSTALLER

**Please refer to Infiltrator Septic Tank General Instructions
These systems will need to be preceded by a septic tank approved for use in
Oregon. All tank volumes will be as required in OAR 340-071**

1. Prepare an excavation, having a diameter approximately one foot larger than the tank and a depth that will allow approximately 3 inches of the inspection port to extend above normal ground level. Backfill with a 6 inch layer of sand or gravel if otherwise unable to provide a smooth, level, compact base. We recommend that the hole be roped off in some fashion to prevent injury to passersby.
2. Utilizing lifting lugs provided, place the plant in the excavation so that the inlet and outlet line up with the sewer piping. The inlet line should slope down toward the plant and the outlet line should slope down away from the plant. The plant should be level within 1/2 inch, edge to edge.
3. Position inlet and outlet lines and make connections as necessary, depending upon construction materials. The inlet line should be inserted and glued into the inlet elbow and the discharge line should be inserted and glued into the outlet coupling.

Note: Open inspection port and make sure discharge tee assembly is level and centered in clarifier prior to attaching discharge piping. Fill the tank with water until water flows from the discharge before backfilling. Backfill around plant, up to the bottom of the discharge connections.

4. Do not install the air pump(s) in a low lying area where water may accumulate. The air pump should be installed near the control panel and within 100 ft. of the tank. The air pump can be installed outdoors or in a clean, well ventilated area, such as a tool room, garage, etc.
5. Mount the control panel in an area such that the alarm can be heard and be readily observed. A 3-wire grounded GFI circuit is required for safety. Install a disconnect switch near the panel to visually disconnect the control panel from the power source. All electrical work shall be done according to NEC and local code requirements. The control panel must be grounded. Connect the source ground wire to the ground location in the panel.
6. The control panel is rated for indoor and outdoor use and contains a fuse or circuit breaker for the air pump. An electrical malfunction in the air pump or wiring to the air pump will cause the fuse or circuit breaker to blow. The control panel also contains a pressure switch and visual and audible alarm. Loss of air pressure caused by air pump system malfunction or a high water level in the treatment plant will cause the alarm to sound and light to illuminate.
7. Attach control panel to suitable mounting surface using all four mounting holes on back of box. Use proper screws of sufficient length to insure a secure and permanent mounting.

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8. Control panel is rated for outdoor service, however, do not place it where it can be immersed in rising water or where run-off water such as from a roof will fall on it. Do not mount it where it is subject to wetting from sprinklers, hoses, etc.
9. The control panel must never be connected to a circuit that is not properly grounded. Never connect the unit to a non-grounded circuit. If there is doubt, have a qualified electrician check for proper grounding. The control panel must be connected to a 20amp maximum electric source equipped with a ground fault interrupter (GFI) circuit breaker. A standard circuit breaker can be replaced with a GFI circuit breaker which can be obtained from almost any store that sells electrical supplies.
10. After the control panel is properly mounted, connect conduit and install wiring as shown on drawings bound herein.
- 11a. Install float switch wire from the control panel to the treatment plant. Wire can be direct burial type UF 600 volt or can be installed in schedule 40 pvc conduit. Use type THWN, 600 volt if installed in conduit. Wire must be buried in accordance with NEC table 300-5. If in doubt, bury 24" deep. Keep sufficient distance or depth from air line to avoid confusion of pipes or damage to wiring during installation or repair of air piping. Connect to the float switch normally open contacts using underground rated compound filled wire nuts.
- 11b. If using the dual pressure switch panel ignore 11a. To set the high level pressure switch that detects high water level in the unit follow the below instructions:

Bring plant to operating water level with compressor turned on. Using properly sized screw driver, turn high level alarm adjustment screw clockwise until alarm occurs. Then turn the screw counter-clockwise until alarm stops.
12. Connect the pressure air tubing to the 1/8" barb-fitting in the air piping system. The air tubing should be protected by conduit as shown on drawing.
13. Install a minimum 2" schedule 40 PVC piping between air pump and treatment unit. A minimum of 12" ground cover is recommended.
14. Turn power on to control panel. Air pump should start.
15. Check air piping joints for leakage using a soapy water solution. Repair if necessary and then carefully backfill air line and inlet and discharge piping and cover plant to grade level.
16. Re-check water level in the tank.
17. Plant is ready to receive incoming sewage. No special start-up procedures are required. The process is naturally occurring and does not require any special additives.
18. Test alarm circuit by momentarily squeezing air tubing and allowing air pressure to decrease. This should take a few minutes. Alarm should occur. Release air tubing and alarm should stop. Lift float in tank to horizontal position. Alarm should occur. Release

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float. Alarm should stop. The audible alarm can be turned off by flipping the toggle switch on the panel front door to the left.

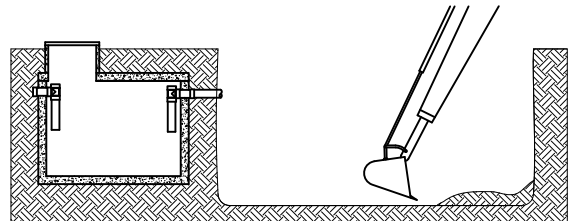
19. Close cover on control panel and lock if necessary.
20. In the event that a fuse blows, replace with time delay or slow blow, 125 volt minimum voltage rating and the same amp rating as the existing fuse.
21. The distribution of air to all droplines must be uniform. If the air flow is not evenly distributed, check the air pump or the main air line.
22. Spend time with your customer whenever possible. Review operation instructions. Be sure that the customer has a manual to keep. This saves valuable time avoiding return visits.
23. Retain these instructions for future reference.
24. **WARNING:** Control panel contains high voltage and must only be installed and serviced by qualified personnel.

NOTE: Reference and follow all Infiltrator General Installation Instructions

DELTA ENVIRONMENTAL RECOMMENDED INSTALLATION PROCEDURE

1. EXCAVATION:

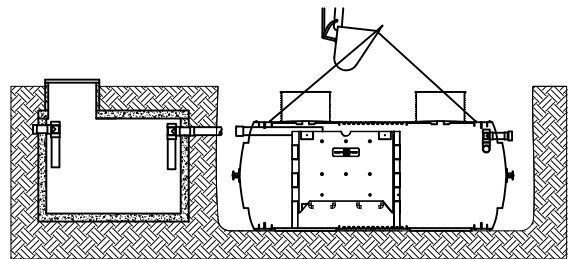
Dig hole from the side for accurate sizing. This reduces the bridging distance between the tank and undisturbed soil and provides good support for inlet and outlet pipes. The bottom of the hole should be undisturbed and level. If leveling is necessary due to over excavation, use sand for fill.



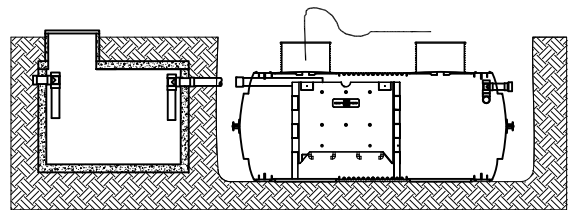
NOTE: Never place tank directly on rock. place at least six inches of sand bedding between the tank and rock surface.

2. TANK PLACEMENT:

Use the back hoe to set the tank. Lifting ropes are furnished to lift the tank.




CAUTION: A small amount of soil or sand should be used around the bottom of the tank to hold it in place. Sand is best. If excavated soil is used, tamp it underneath the tank to provide a good base.



3. FILL TANK WITH WATER:

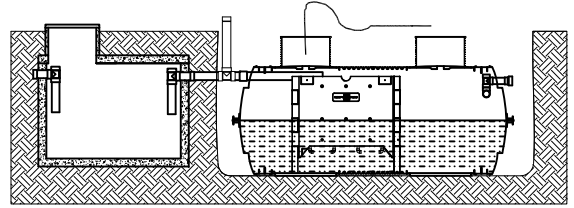
Place hose in 24" manway. Begin filling tank with water.

REV.	DATE	REVISION DESCRIPTION			BY			INSTALLATION PROCEDURE			
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						NTS	DEP034 IM-1060	D. WRIGHT	10/30/07	1 OF 2	A

4. GFI CONTROLS AND AIR PUMP

Install duplex or quadruple GFI or GFI protected receptacles at the selected location of the air pump. Mount control panel and install fittings, tubing and piping to tank location.

CAUTION: Do not plug anything but the air pump into the control panel.

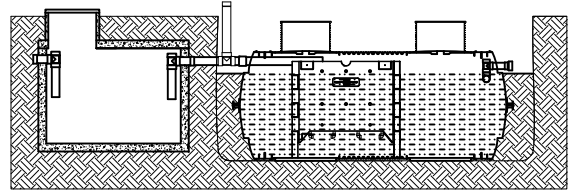


5. INLET/OUTLET AND AIR CONNECTIONS

Properly make solvent cemented inlet, outlet and air connections.

6. FILLING THE TANK

Finish filling tank with water until it drains out of outlet. Begin backfilling with natural soil or a good back fill material.



7. AIR DISTRIBUTION

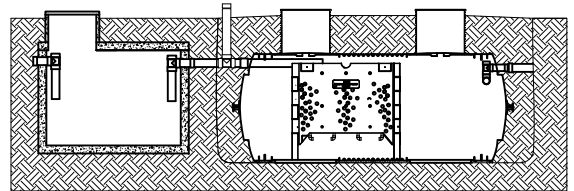
Turn the air pump on and check all air connections and piping for air tightness.

NOTE: If electrical GFI receptacle has not been installed, for checking air distribution system during installation. Use an extension cord to run the air pump. Never leave the extension cord plugged in. Remove it after inspection is completed.

WARNING: Possible Fire Hazard

Do Not plug into main service equipment on power pole.

Do Not use extension cords



8. FINAL BACK FILLING

Back fill Should be mounded above grade slightly to allow for settling. Tamp the back fill beneath the inlet, outlet and air piping to provide good support.

Note: Reference Infiltrator's "Assembler's Resource Guide" for complete installation procedures.

					INSTALLATION PROCEDURE				
REV.	DATE	REVISION DESCRIPTION	BY						
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TROUBLE SHOOTING GUIDE FOR DELTA ECOPOD-N FIXED FILM WASTEWATER TREATMENT SYSTEM

AIR SUPPLY MALFUNCTION

1. Check to be sure air distribution is working properly. This will be evident in the reactor as the liquid will be forcefully agitated. A septic (rotten egg) odor could mean that the system is not getting enough air. If the air system is not working, partially working or working very little (slight bubbles), check the following:
 - a. Check to be sure the air pump is working.
 - check timer if one is used
 - bypass timer temporarily connect directly to source
 - check the electrical source
 - if electrical source is ok-check service guide on pump unit for troubleshooting information
 - wash air filter on pump
 - consult manufacturer for servicing information
 - b. Check to be sure tank is not severely out of level. Air follows a path of least resistance. The pressure differences can be enough to restrict air flow.
 - c. Check for broken or cracked air lines both outside and inside the tank
 - d. Ants will destroy an air pump. Check to see if there is an ant nest around the air pump.
 - e. Air pump should be protected from rising water.
 - f. Always check to see if inlet and outlet lines are correctly installed.

INTERNAL ASSEMBLY MALFUNCTION

1. Primary treated wastewater from the primary tank should not enter directly into the dilution zone because of improperly installed or loose seals or gaskets where pipe goes through the tank wall. Check the size of holes to be sure that there is no clearance for matter to pass through the wall around the piping.
2. Check to be sure all internal piping and connections are tight.

DESIGN OVERLOAD

1. The system could be hydraulically overloaded (there is too much water going through the system for the size of the system).
2. The system could be biologically overloaded (there is too much waste for the size of the system).

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IMPROPER INSTALLATION OR SETTLING

1. You should follow the manufacturer's installation procedures very carefully.
2. Where settling is common, approximately 2" of sand should be placed and tamped in the bottom of the hole.
3. Proper installation is the first step in preventing call backs for service problems.
4. Whenever possible, it is important to spend time with the homeowner. Be sure they have an operations book. A few minutes invested in the beginning will avoid service calls later.

NO HARSH CHEMICALS SHOULD BE PUT INTO THE SYSTEM

1. Water in the reactor tank should be relatively clear in both the reactor and dilution zone. Blue or gray/blue water indicates heavy use of detergents or other chemicals. If water appears sudsy there is too much detergent being used.
2. Water in the dilution zone should be clear. Water is discharged into the discharge tee at a minimum of 6-8 inches below water surface. You MAY NOT be able to see clear water by looking into the tank. Samples must be taken at the sample port.
3. Oils and grease should be kept to a minimum. Grease tends to form in white balls.

TROUBLE SHOOTING ELECTRICAL SYSTEM

1. Air pump does not run
 - a. Check main service for power
 - b. Check and/or replace fuse with same rating as is in control panel
2. Alarm does not occur when air pump is off
 - a. Malfunctioning pressure switch – replace
 - b. Malfunctioning light or buzzer – replace
3. Alarm occurs continuously even when air pump is running
 - a. Air leak in main air system or air tubing to pressure switch - repair leak or replace air line.
 - b. Malfunctioning pressure switch – replace
 - c. High water level in tank - inspect for cause
 - d. Short in float switch wire or float switches – repair or replace

NOTE: All replacement parts are available from your local distributor.

CAUTION: **Electrical shock or hazard may occur if unit is not serviced properly. The manufacturer recommends that a licensed electrician be called when electrical problems occur.**

COMPONENT REPLACEMENT PROCEDURE

- **Air Pump** Follow the same procedure as outlined in the “Installation Instructions.”
- **Float Switch:** Remove Treatment Plant’s Riser or 24” cover. Locate float switch cable. Untie knot. Cut float switch cable. Slip float switch cable through rubber grommet into the plant. Replace with exact replacement float switch. Reinstall by reversing the procedure. Reconnect float switch wires using underground rated compound filled wire nuts. **See Float Switch Mounting Details. (Applicable only with float switch option)**
- **Pressure Switch:** Turn all power off to the control panel. Remove screws securing pressure switch as well as connectors and tubing. Reverse procedure to install new pressure switch.
- **Buzzer:** Turn all power off to the control panel. Remove screw attaching buzzer to back plate as well as connectors. Reverse procedure to install new buzzer.
- **Lamp holder:** Turn all power off to control panel. Remove lock nut securing lamp holder to door as well as connectors. Remove lamp holder. Install new lamp holder with gaskets furnished. Continue with reverse procedure.
- **Lamp:** Turn all power off to control panel. Remove red lamp cover from front of control panel. Remove and replace lamp which is a push in type. Replace lamp cover and cover gasket.
- **Fuse:** Turn all power off to control panel. Pull top of fuse holder outward. Remove and replace fuse. Push fuse back into place.
- **Buzzer Switch:** Turn all power off to control panel. Remove rubber boot on switch. Remove hex nut from switch on panel front as well as connectors on switch. Reverse procedure to install new switch.

GENERAL COMMENTS

- Only factory approved equipment can be used for replacement on individual treatment systems.
- If the decision is made to pump out a system, be sure to contact a licensed waste hauler.
- If a chronic problem develops and all items have been checked, consult with the factory.
- Taking pictures of systems when troubleshooting will help document activity in the field.
- Keep good records.

NOTE:

If the entire cover needs to be removed on any one of the various model treatment plants, the existing silicone or strip seal must be removed and replaced with a new one. This will provide a positive seal which will not allow any infiltration into or out of the treatment plant.

Delta Environmental • 8263 Florida Blvd. • Denham Springs, LA 70726 • 1-800-219-9183

**APPENDIX A
SPECIFICATIONS, DIMENSIONS AND
TREATMENT PLANT DRAWINGS**

State of Oregon

ATT Malfunction Prevention Configurations

Configuration 1 – Septic tank/E50/60/75NIM1060 – 500 GPD ATU with Delta’s DEP 24.5115V 24” Effluent Pump Station

- Delta’s CP 3638r1 Electrical Control panel with DEP 24.5115V24” secondary effluent pump shut down feature.
- Upon air compressor failure or high water alarm status, unit’s controller will lock out secondary effluent pump operation to the disposal field. Pump lock out feature will stay until reset by service provider. Alarm lights and audible alarms will indicate which alarm is occurring including high level in Delta’s DEP 24.5115V 24” effluent pump station.

Configuration 2 – Septic tank/E50/60/75N IM1060 - 500 GPD ATU with primary effluent pump configuration effluent pump assembly DEPIT.5115V.

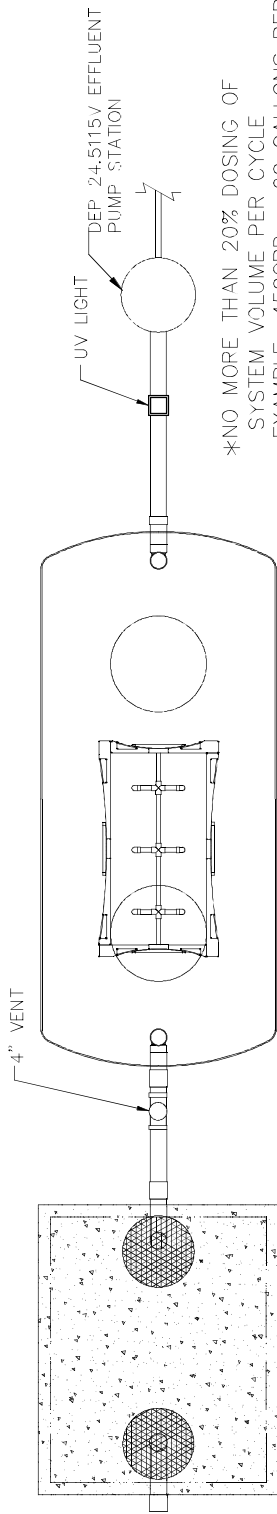
- Delta’s CP 3638r1 /ECO Electrical Control panel with DEPIT.5115V primary pump shut down feature.
- Upon air compressor failure or high water alarm status, unit’s controller will lock out primary effluent pump operation to Ecopod-N unit. Pump lock out feature will stay until reset by service provider. Alarm lights and audible alarms will indicate which alarm is occurring either high level in primary tank or Ecopod-N unit

Configuration 3 – Septic tank/E50/60/75 IM1060 – 500 GPD ATU and State approved dosing tank configuration. Dosing tank shall meet state of Oregon OAR 340-071-220(6) regulations.

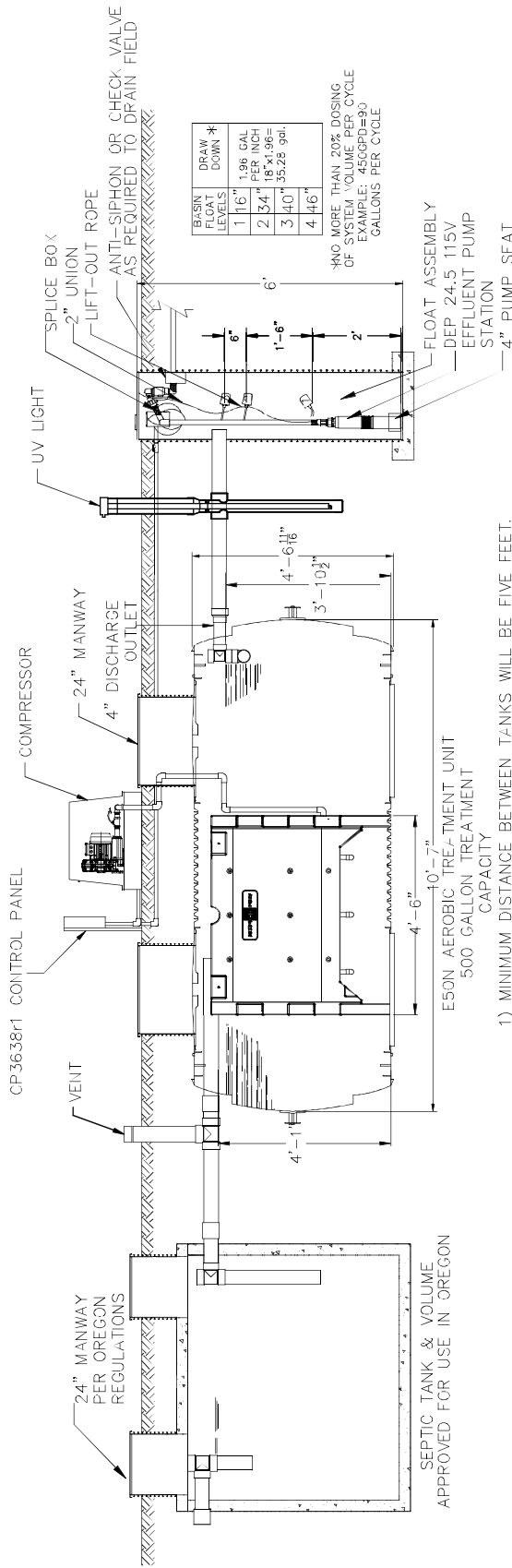
- Delta’s CP 3638r1 Electrical Control panel with DEP .5115V effluent pump shut down feature.
- Upon air compressor failure or high water alarm status, unit’s controller will lock out secondary effluent pump operation to disposal field. Pump lock out feature will stay until reset by service provider. Alarm lights and audible alarms will indicate which alarm is occurring including high level in dosing tank.

Delta’s Electrical Controller Specifications - CP 3638r1

- Visual and audible signals are noticeable at 50 feet from system. As Certified by NSF International. Audible is between 70 and 90 dba at 5 feet. As certified by NSF
- Visual and Audible signals are separate from mechanical functions and remain activated during malfunctions except when there is loss of electrical power to facility.
- A visible label with instructions for obtaining service will be permanently attached to Electrical Controller.



*NO MORE THAN 20% DOSING OF SYSTEM VOLUME PER CYCLE
 EXAMPLE: 450GPD = 90 GALLONS PER CYCLE.



SEPTIC TANK & VOLUME APPROVED FOR USE IN OREGON

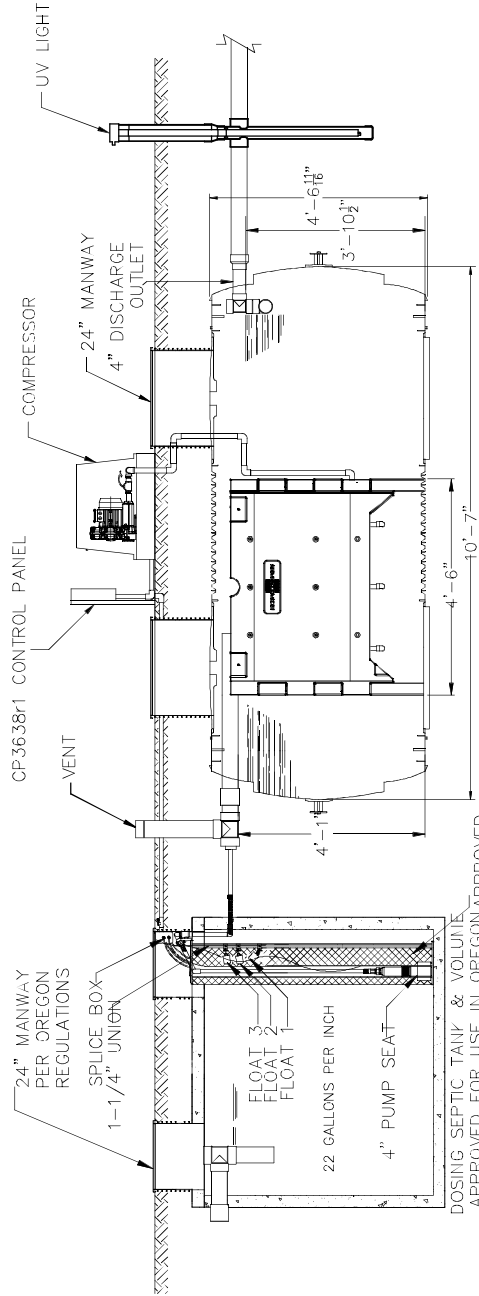
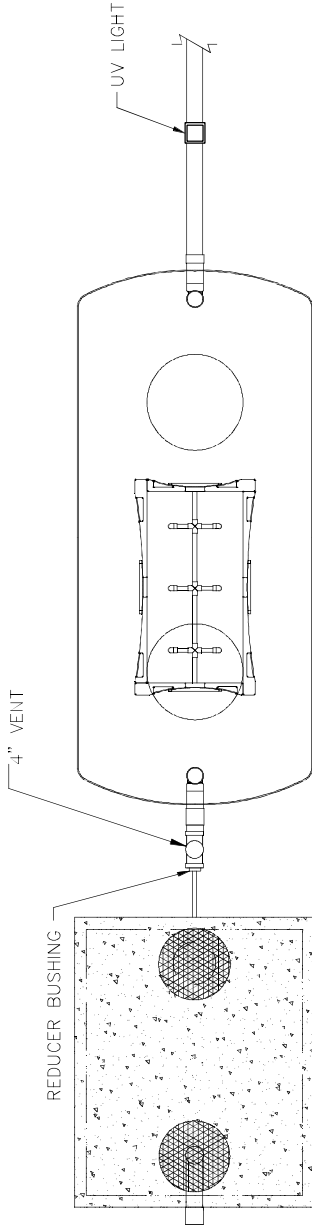
E50N AEROBIC TREATMENT UNIT
 500 GALLON TREATMENT CAPACITY

- 1) MINIMUM DISTANCE BETWEEN TANKS WILL BE FIVE FEET.
- 2) ELEVATION LEVEL BETWEEN TANKS PER OREGON STATE RULES.
- 3) PIPE SIZE TO DRAIN FIELD PER OREGON STATE REGULATIONS.
- 4) ALL TANKS MUST BE WATERTIGHT.
- 5) UV AS SHOWN ON DRAWING WHEN FECAL REDUCTION BELOW 400mg/L IS REQUIRED.

*NOTE: ALL EXTERIOR PIPE SIZE AS PER OREGON REQUIREMENTS
 *NOTE: THE VOLUME OF THE SEPTIC TANK WILL BE AS REQUIRED IN OAR 340-071-2220(3)

CONFIGURATION I

		DELTA ECOPOD-N 500 GPD UNIT W/ OREGON APPROVED SEPTIC TANK & DEP24.5115V HIGH HEAD PUMP STATION	
PLOT SCALE NTS	DRAWING NUMBER DEP248A E50N	DRAWN BY L.CUTRER	DATE 04/24/15
REVISION DESCRIPTION COMPANY CONFIDENTIAL: INFORMATION CONTAINED HEREIN IS CONFIDENTIAL, IT IS THE PROPERTY OF PENTAIR PUMP GROUP, IT IS TO BE USED SOLELY FOR THE PURPOSE PROVIDED, AND IT IS NOT TO BE DISCLOSED TO OTHERS WITHOUT THE PRIOR WRITTEN CONSENT OF PENTAIR PUMP GROUP.	SHEET OF 1 OF 1	REV A	



E50N AEROBIC TREATMENT UNIT
500 GALLON TREATMENT CAPACITY

*NOTE: 5' MINIMUM SEPARATION DISTANCE BETWEEN TANKS.

*NOTE: THE VOLUME OF THE SEPTIC TANK WILL BE AS REQUIRED ON OAR 340-071-2220 (3)

*NOTE: ALL EXTERIOR PIPE SIZE AS PER OREGON REQUIREMENTS

CONFIGURATION 2



Delta Environmental™
Pentair-Water

DELTA ECOPOD 500 GPD UNIT
W/ OREGON APPROVED DOSING SEPTIC TANK

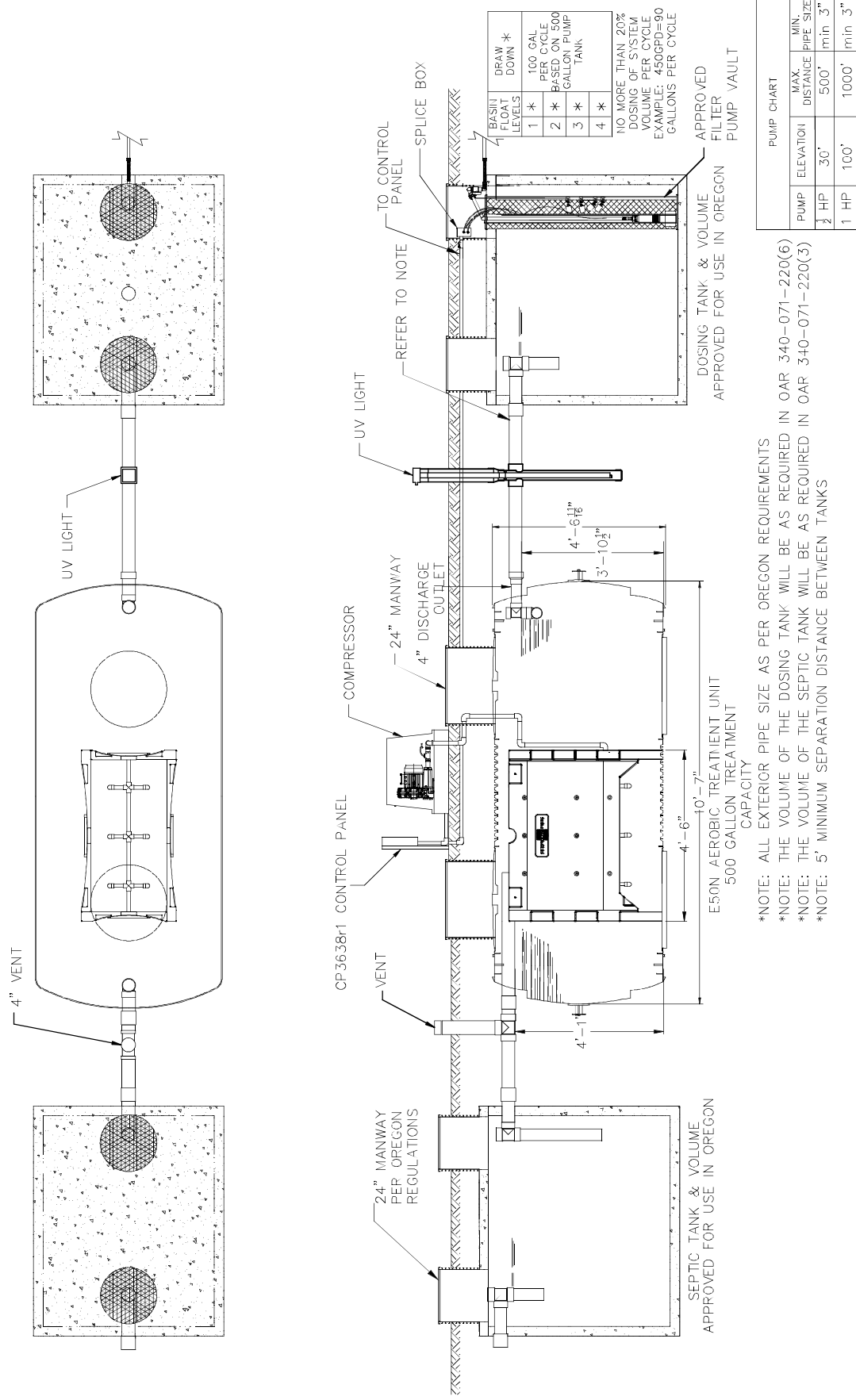
DRAWN BY L.CUTRER DATE 04/24/15 SHEET 1 OF 1 REV A

DRAWING NUMBER DEP248A E50N

PLOT SCALE NTS

REVISION DESCRIPTION

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BASIN FLOAT LEVELS	DRAW DOWN *
1 *	100 GAL PER CYCLE
2 *	BASED ON 500 GALLON PUMP TANK
3 *	
4 *	

NO MORE THAN 20%
DOSING OF SYSTEM
VOLUME PER CYCLE
EXAMPLE: 450GPD=90
GALLONS PER CYCLE

PUMP CHART	
PUMP	MIN. DISTANCE PIPE SIZE
1 HP	30'
2 HP	500'
3 HP	1000'
4 HP	1500'

*NOTE: ALL EXTERIOR PIPE SIZE AS PER OREGON REQUIREMENTS
 *NOTE: THE VOLUME OF THE DOSING TANK WILL BE AS REQUIRED IN OAR 340-071-220(6)
 *NOTE: THE VOLUME OF THE SEPTIC TANK WILL BE AS REQUIRED IN OAR 340-071-220(3)
 *NOTE: 5' MINIMUM SEPARATION DISTANCE BETWEEN TANKS

CONFIGURATION 3



Delta Environmental
Pentair - Water

**DELTA ECOPOD 500 GPD UNIT
W/ OREGON APPROVED SEPTIC TANK &
DOSING TANK**

DATE: 04/24/15
 SHEET OF: 1
 REV: A

REV. DATE

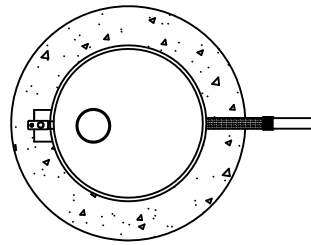
REVISION DESCRIPTION

BY

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INSTALLATION

1. The basin is plastic pipe with sealed fiberglass bottom and optional anti-floatation ring to prevent basin from floating up in high water conditions. Do not leave basin in unfilled hole without concrete as ground water or rain may float basin up breaking inlet, discharge and electrical conduit connections.
2. A 3' dia. x 4" thk. concrete base is required for anchoring purposes.

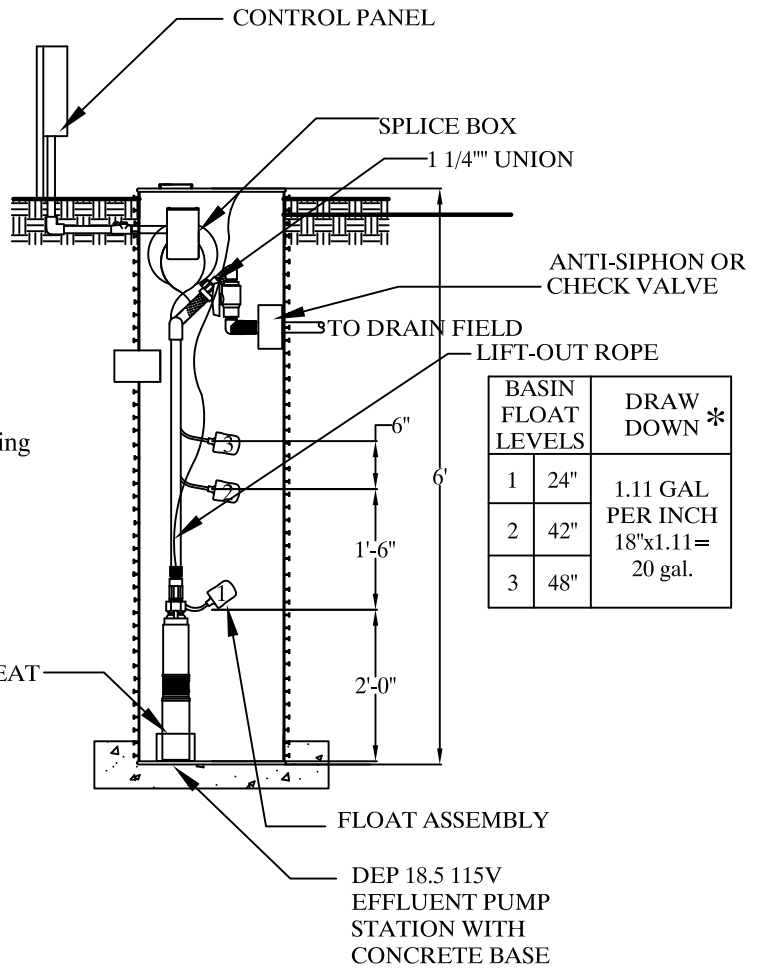


ELECTRICAL ASSEMBLY

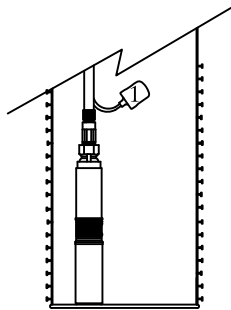
1. Connect level control and pump power cords to junction box as shown in diagram. Make certain all compression fittings are tight.
2. Install control panel.
3. Run wires to control panel through conduit and connect cords coming into connection box. Mark or trace each incoming wire so that it can be connected to the proper cord.

STARTING SYSTEM

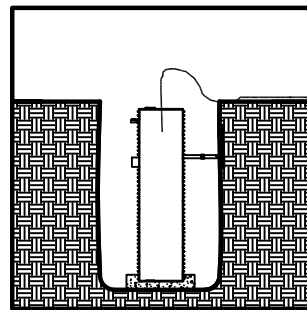
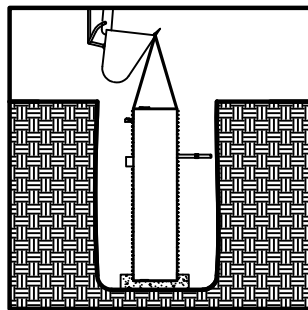
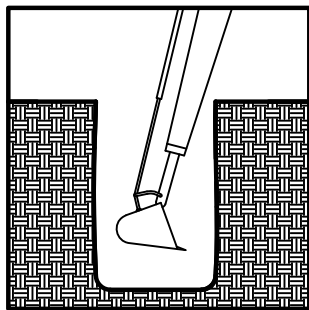
1. Open ball valve.
2. Run water into basin until the "ON" level control starts the pump. Allow pump to operate until sump level drops, deactivating "OFF" level control, stopping pump.



BASIN FLOAT LEVELS	DRAW DOWN *
1 24"	1.11 GAL PER INCH
2 42"	18"x1.11=
3 48"	20 gal.



SEALED FIBERGLASS BOTTOM



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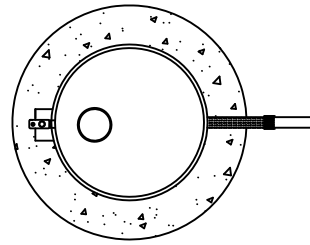

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 Pentair Water

DEP 18.5 115V EFFLUENT PUMP STATION INSTALLATION PROCEDURE

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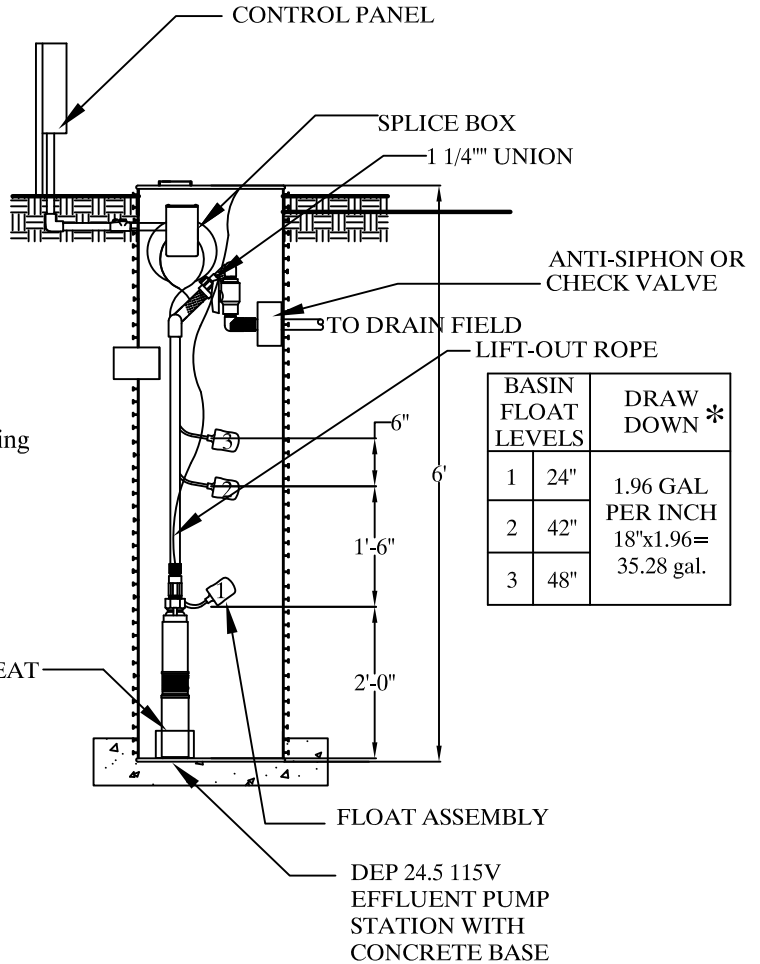
INSTALLATION

1. The basin is plastic pipe with sealed fiberglass bottom and optional anti-floatation ring to prevent basin from floating up in high water conditions. Do not leave basin in unfilled hole without concrete as ground water or rain may float basin up breaking inlet, discharge and electrical conduit connections.
2. A 3' dia. x 4" thk. concrete base is required for anchoring purposes.



ELECTRICAL ASSEMBLY

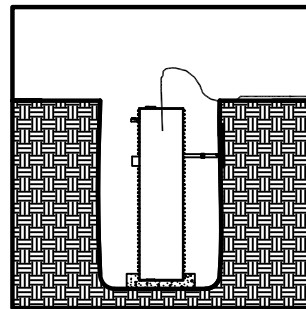
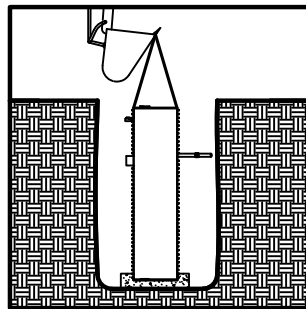
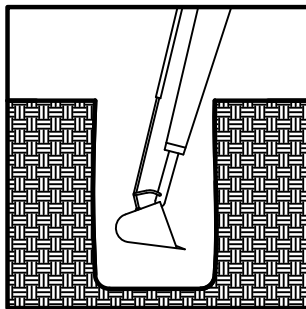
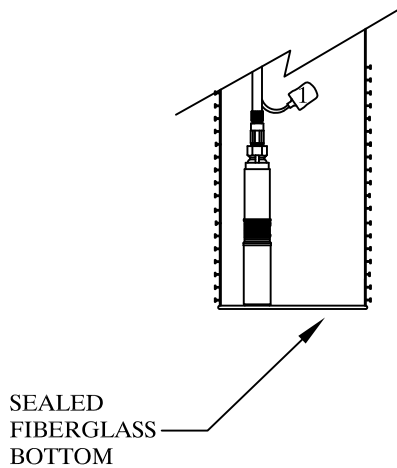
1. Connect level control and pump power cords to junction box as shown in diagram. Make certain all compression fittings are tight.
2. Install control panel.
3. Run wires to control panel through conduit and connect cords coming into connection box. Mark or trace each incoming wire so that it can be connected to the proper cord.



BASIN FLOAT LEVELS	DRAW DOWN *
1 24"	1.96 GAL PER INCH
2 42"	18"x1.96=
3 48"	35.28 gal.

STARTING SYSTEM

1. Open ball valve.
2. Run water into basin until the "ON" level control starts the pump. Allow pump to operate until sump level drops, deactivating "OFF" level control, stopping pump.



REV.	DATE	REVISION DESCRIPTION	BY


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DEP 24.5 115V EFFLUENT PUMP STATION INSTALLATION PROCEDURE

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ECOPOD-N UNIT SPECIFICATIONS

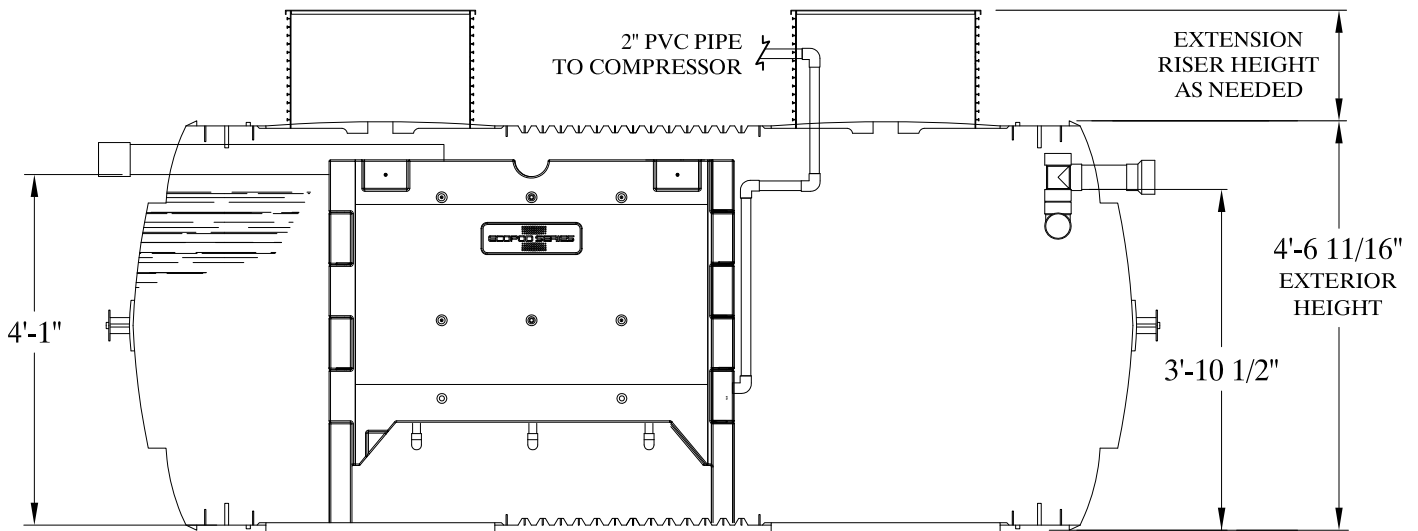
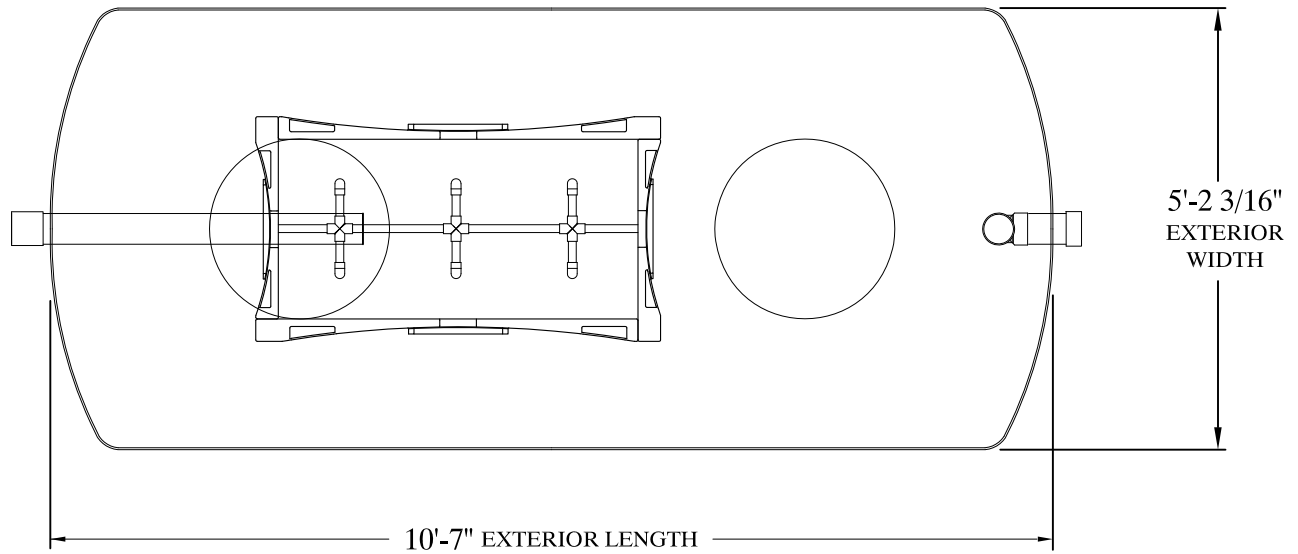
TREATMENT PLANT	TREATMENT CAPACITY (GPD)	PRIMARY TANK TOTAL VOLUME (GAL)	REACTOR TANK VOLUME (GAL)	REACTOR TANK DILUTION VOLUME (GAL)	MEDIA SIZE	AIR REQUIREMENTS
E50N	500	1,000	1,070	950	2'X2'X4'	12 CFM

MATERIALS OF CONSTRUCTION

IM1060 Strong Injection Molded Polypropylene

ELECTRICAL REQUIREMENTS

MODEL	COMPRESSOR	MOTOR FULL LOAD AMPS	MEASURED OPERATING WATTS	ELECTRICAL REQUIREMENTS
E50N	Delta Model 06	3.5	185 watts	115 volt – single phase



NOTE: REFERENCE INFILTRATOR'S "ASSEMBLER'S RESOURCE GUIDE"
FOR INSTALLATION DEPTH AND COMPLETE INSTALLATION PROCEDURES.



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Pentair Water

**E50N
TANK DIMENSIONS**

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PLOT SCALE
NTS

DRAWING NUMBER
IM-1060 DIMS

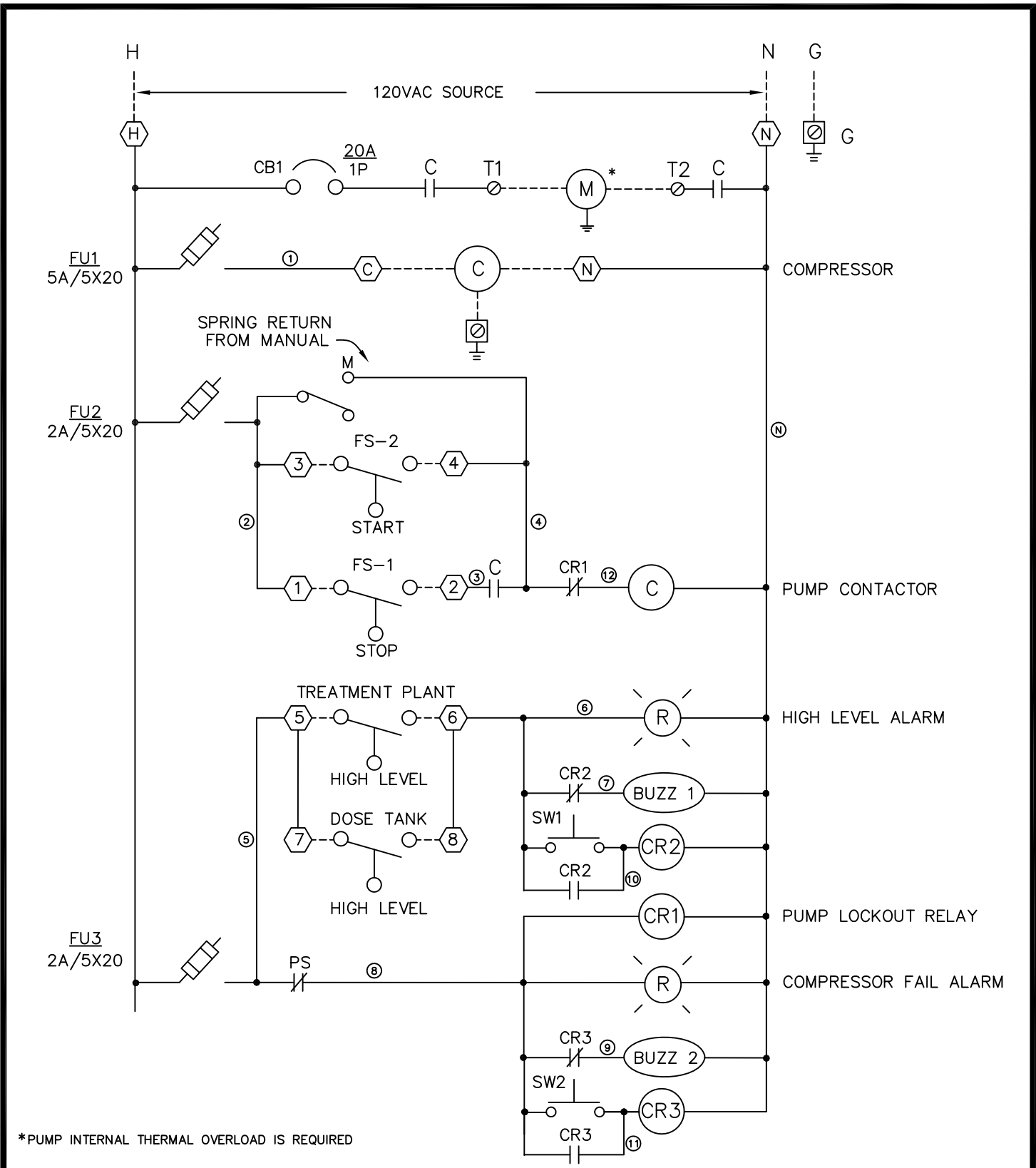
DRAWN BY
D. WRIGHT

DATE
09/04/12

SHEET OF
1 OF 1

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A

APPENDIX B ELECTRICAL DRAWINGS



*PUMP INTERNAL THERMAL OVERLOAD IS REQUIRED



Power Diagram Control Panel

Delta Environmental Products
P.O. Box 969 Denham Springs, LA 70727

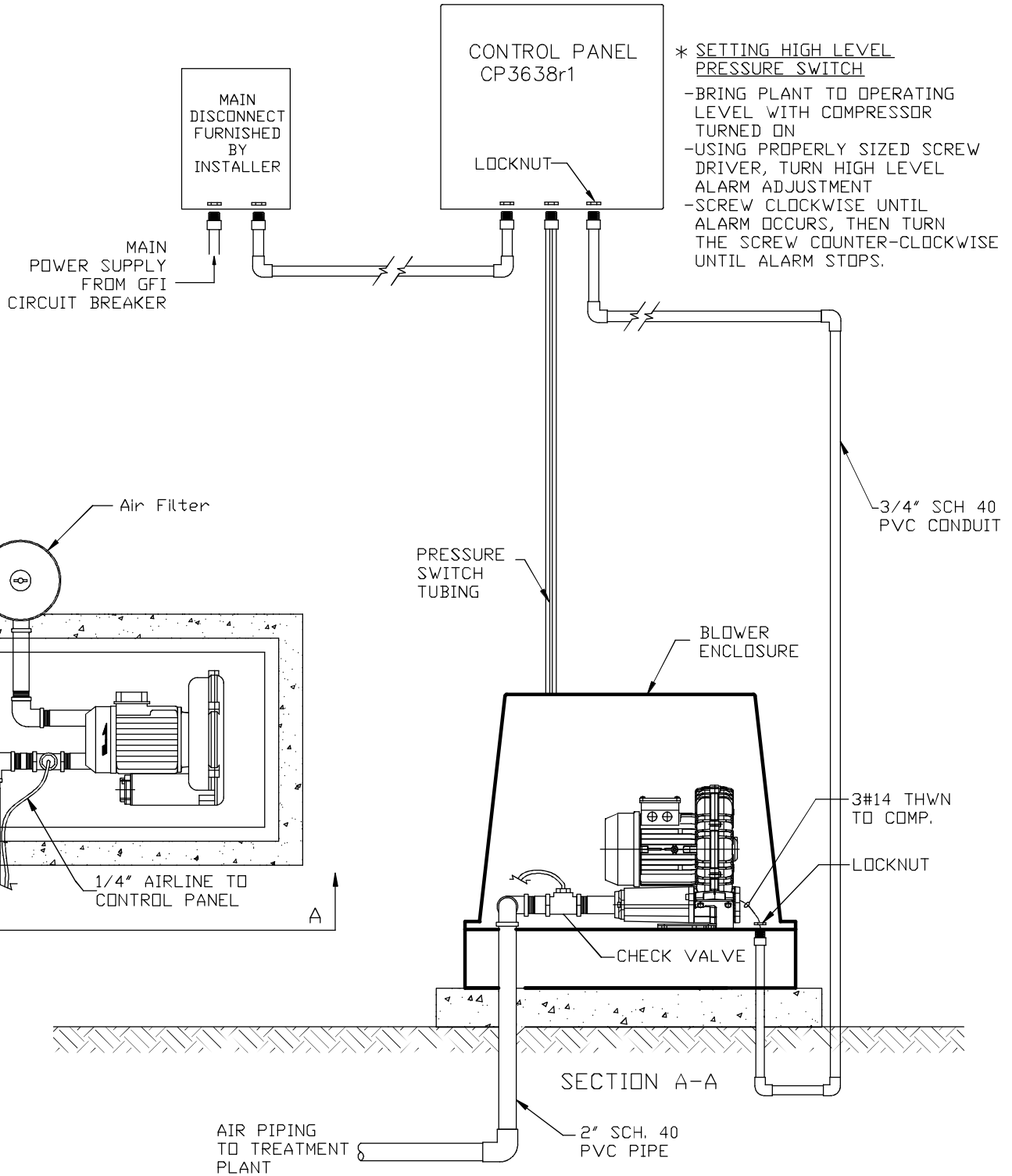
DWN BY:
M.SUTHERLAND

DATE:
11/03/10

SCALE:
NTS

DWG. NO.:

JOB NO.:
CP-3638R1



REV.	DATE	REVISION DESCRIPTION	BY

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CONTROL PANEL CONNECTION

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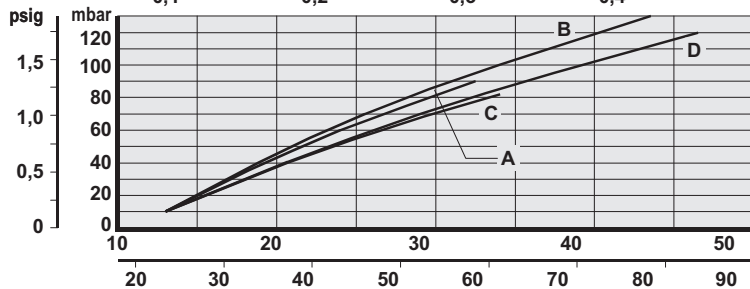
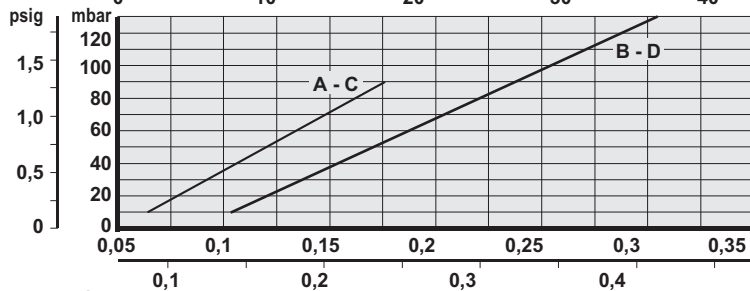
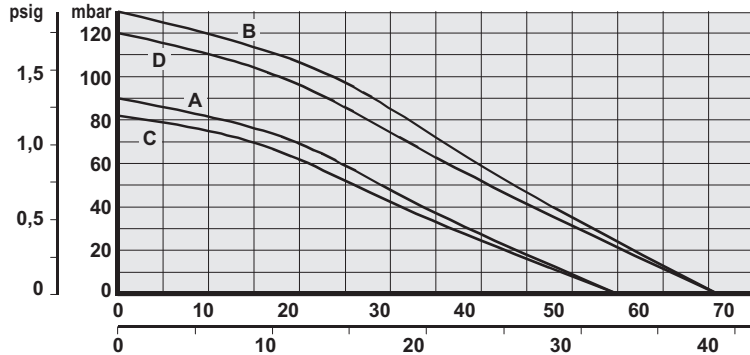


F.P.Z. GmbH
 Kilianstraße 142
 90425 NÜRNBERG
 Tel. 0911.36.76.68.00
 Fax 0911.36.76.68.01
 E-mail deutschland@fpz.com

LATERAL CHANNEL BLOWERS - EXHAUSTERS

SCL 06 MOR

SN 1750-0



P ⁽¹⁾ kW	Δp ⁽²⁾ mbar psig	Q ⁽³⁾ m³/h cfm
------------------------	--------------------------------	------------------------------

COMPRESSOR

A	50 Hz - 2900 rpm			
0.2	90	1.30	0	0

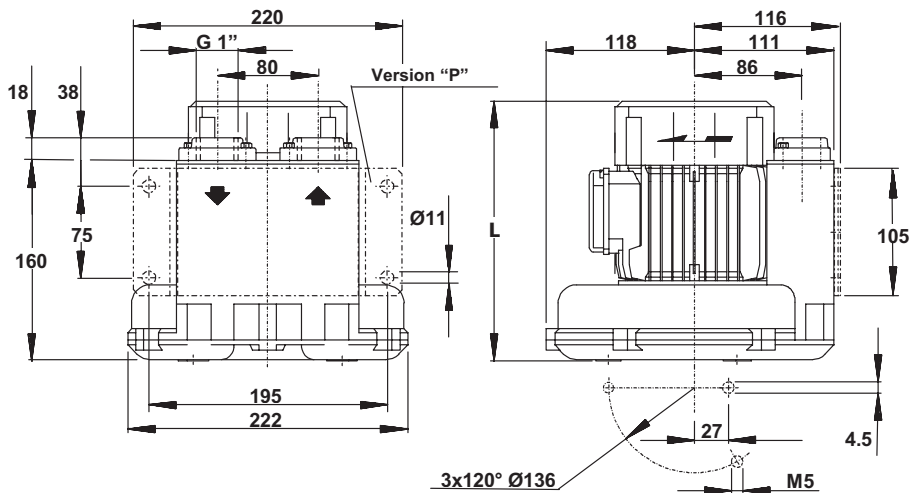
B	60 Hz - 3500 rpm			
0.23	80	1.16	32	19
0.4	130	1.88	0	0

EXHAUSTER

C	50 Hz - 2900 rpm			
0.2	82	1.18	0	0

D	60 Hz - 3500 rpm			
0.23	80	1.16	28	16
0.4	120	1.74	0	0

kW	H	m
50 Hz - 60 Hz		Kg
0.2 - 0.23	235	6.5
0.4	235	7.1



MAXIMUM NOISE LEVEL	
	Lp dB(A)
50 Hz - 2900 rpm	58
60 Hz - 3500 rpm	59

To allow the perfect performing of the machine, it has to be equipped with the INLET FILTER and the SECURITY VALVE AT LEAST; other accessories available on request.

- (1) Installed power.
- (2) Maximum differential pressure referred to installed motor.
- (3) Inlet flow at max differential pressure per installed motor.

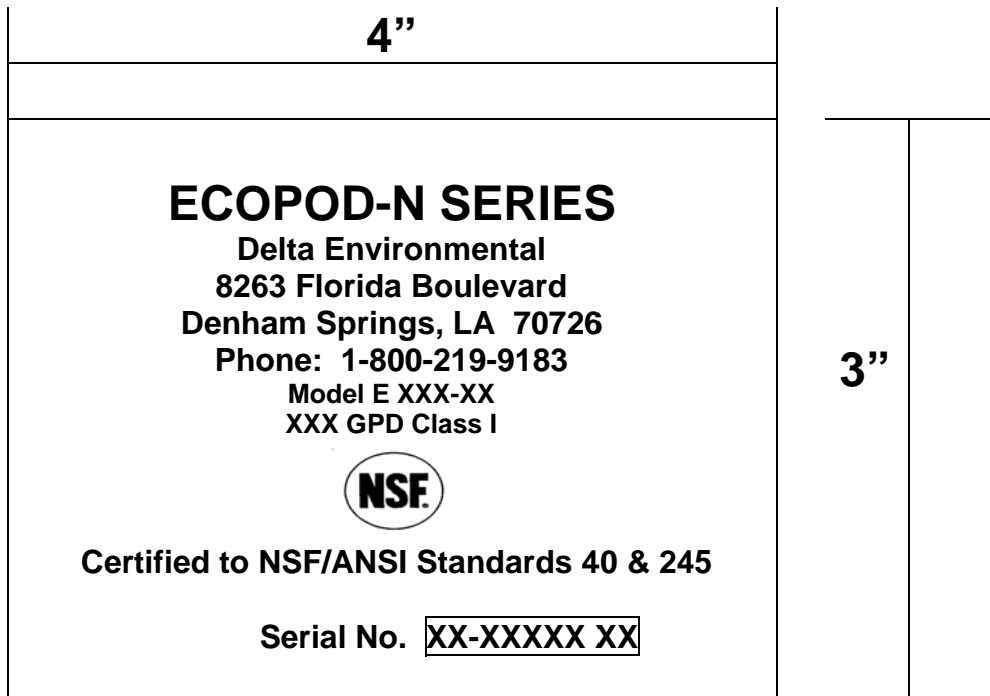
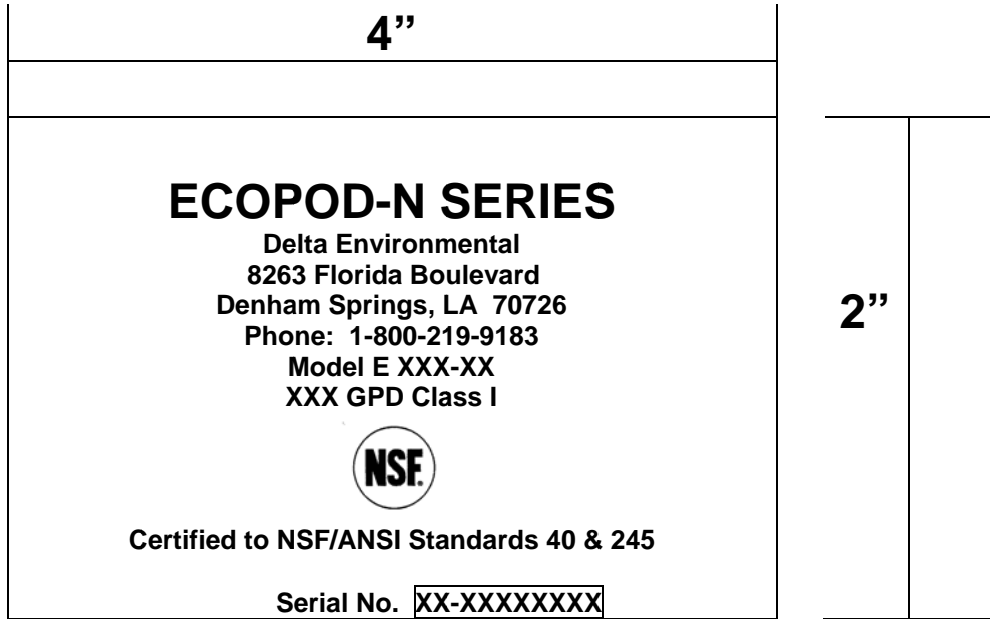
The characteristics data given, refer to the handling of gas with inlet temperature of 15°C, normal density of 1,23 kg/m³ and absolute pressure of 1013 mbar in suction in case of performing as compressor, in discharge in case of performing as exhauster. Dimensions in mm. Noise level measured at 1 m distance with in/outlets piped. Tolerance on given values ±10% - unbinding and can be changed without prior notice.

ADDITIONAL MATERIALS NEEDED FOR CONTROL PANEL ELECTRICAL INSTALLATION

<u>QUANTITY</u>	<u>ITEM</u>	<u>MANUFACTURER OR EQUAL</u>
As required	2#12UF with ground	
2	300 volt silicon filled underground service wire nuts	King-6T
As required	Conduit and fittings are as shown in the drawings contained in this manual.	
1	20 amp minimum A/C Type disconnect switch or equal. Required on CP20 series panels only	

APPENDIX C DATA PLATES

ECOPOD-N SERIES DATA PLATES



**APPENDIX D
SERVICE POLICY, WARRANTIES
AND INSPECTION COUPONS**

DELTA ENVIRONMENTAL INDIVIDUAL MECHANICAL WASTEWATER TREATMENT SYSTEM SERVICE POLICY

INITIAL POLICY:

A two year initial service policy shall be furnished to the user by the manufacturer or the distributor through the dealer. This policy is to be included in the purchase price from the seller of the system and shall provide the following:

1. **An inspection/service call every six months**, which includes inspection, adjustment, and servicing of the mechanical and electrical component parts as necessary to ensure proper function.
2. An effluent quality inspection every six months consisting of a visual check for color, turbidity, scum overflow, and an examination for odors.
3. If any improper operation is observed which cannot be corrected at that time, the user shall be notified immediately in writing of the conditions and the estimated date of correction. **THIS POLICY DOES NOT INCLUDE PUMPING SLUDGE FROM UNIT IF DEEMED NECESSARY.**

CONTINUING SERVICE POLICY:

An annually renewable service policy affording the same coverage as the Initial Service Policy is available. Consult your dealer for pricing information.

PARTS:

Replacement parts or components may be obtained from your local distributor or contact Delta Environmental for information.

COMPLAINTS:

In order for Delta Environmental to properly address complaints, we require that you put in writing the date and nature of the complaint as detailed as possible. This **MUST** include the Serial Number of your system.

Send to: Delta Environmental
8263 Florida Blvd.
Denham Springs, LA 70726

LIMITED WARRANTY

Delta Environmental warrants the parts in each treatment system for a limited two year period. All warranty questions shall be resolved through Delta Environmental. The warranty on the treatment device is that the device is free from defects in material and workmanship from the date of installation treating household wastewater. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply. Sole obligation under this warranty is as follows: Delta Environmental shall fulfill this warranty by repairing or exchanging any component part, F.O.B. factory that in Delta Environmental judgment shows evidence of defects, provided said component part has been paid for and is returned through an authorized dealer, transportation prepaid. The warrantee must also specify the nature of the defect to the manufacturer.

The warranty does not cover treatment processes/devices that have been flooded, by external means, or that have been disassembled by unauthorized persons, improperly installed, subjected to external damage or damaged due to altered or improper wiring or overload protection.

This warranty applies only to the treatment process/device and does not include any of the house wiring, plumbing, drainage, or disposal system. Delta Environmental is not responsible for any delay or damages caused by defective components or material, or for loss incurred because of interruption of service, or for any other special or consequential damages or incidental expenses arising from the manufacture, sale or use of this process/device.

Delta Environmental reserves the right to revise, change or modify the construction and design of the treatment process/device for household wastewater or any component part or parts thereof without incurring any obligation to make such changes or modifications in previously sold equipment. Delta Environmental also reserves the right, in making replacements of component parts under this warranty, to furnish a component part which, in its judgment is equivalent to the part replaced.

Under no circumstances will Delta Environmental be responsible to the warrantee for any other direct or consequential damages, including but not limited to lost profits, lost income, labor charges, delays in production, and/or idle production, which damages are caused by a defect in material and/or workmanship in its parts. Some states do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty is expressly in lieu of any other express or implied warranty, excluding any warranty of merchantability or fitness and of any other obligation on the part of Delta Environmental.

This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Rev 5/2012





2-Year Service Contract For the State of Oregon

Parties: (Authorized Delta Service Provider)

Name: _____
Address: _____

Telephone: _____
Fax: _____
Email: _____

And: (Customer)

Name: _____
Address: _____

Telephone: _____
Fax: _____
Email: _____

System Location:

Address: _____

Legal Description: _____
GPS Coordinates: _____

Installed by: _____

Serial Number: _____

Agency Contact Information:

Agency: _____

Address: _____

Telephone: _____

Fax: _____

Email: _____

Date: _____

NOW, THEREFORE, in consideration of the terms, provision, covenants and conditions herein, the Parties hereto agree as follows:

1.0 Performance of Basic Services

1.1 Initial Service Policy

The Authorized Delta Service Provider shall perform the System Inspection/Service Visits during the 24-month period after installation, as marked:

Inspection/Service Visits ¹	6 th month	<u>1</u>
	12 th month	<u>1</u>
	18 th month	<u>1</u>
	24 th month	<u>1</u>

¹As required by NSF, these services will be included as part of the initial purchase of the system.

These services shall be performed during normal business hours Monday through Friday (excluding national holidays) on a pre-scheduled basis and as the Authorized Delta Service Provider deems necessary or advisable.

At each service visit the System shall be inspected and serviced in accordance with the instructions in the Systems O & M Manual. Additionally, as effluent quality inspection consisting of a visual assessment of color, turbidity, and scum overflow and an olfactory assessment for odor shall be performed.

The Service Provider will affix a "For Service, Call _____" label near the control panel's alarm signal and fill in his or her phone number.

Performance of the 2-year Inspection/Service visits shall include notification of needed repair, replacement or addition of parts used in the system.

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The Service Provider shall be responsible for submitting the annual report and annual evaluation fee to the appropriate regulatory agency as required in OAR-071-0345.

The Service Provider shall notify the owner in writing if any improper system operation cannot be remedied at the time of servicing. The written notification shall include an estimated date of correction.

1.2 Extended Service Policy

The Delta Authorized Service Provider shall make available for purchase by owner an extended service policy with terms comparable to those in the initial service policy.

1.3 Stand By Parts

In the event that a mechanical or electrical component must undergo off site repairs the local authorized representative should maintain a stock of mechanical and electrical components that may be temporarily installed until repairs are completed.

1.4 Availability of Service

The service provider shall provide emergency service within 48 hours of service request.

2.0 Term of Agreement

The agreement shall be for the period 24 months from the date of the system start up unless otherwise terminated or cancelled by either party as provided herein

3.0 Definitions

For purposes of this agreement the following definitions shall apply:

3.1 System shall mean a Delta ANS/NSF 40 certified wastewater treatment system.

3.2 "System Start-Up Date" shall mean the date the System begins operating for its intended purpose.

4.0 Charges

The basic services including service, inspection, effluent quality evaluation, and service, shall be included with the purchase of the System, Optional, additional services shall be provided at the agreed upon contract price and terms. The annual report and annual evaluation fee required by DEQ is not optional, and may or may not be included in the cost of basic services. Refer to Service Providers fee schedule for an outline of the cost of basic services and optional services to be provided under this contract.

5.0 Warranty

The Delta Service provider warrants that all services shall be performed in a good and workmanlike manner and that service provider will correct any system errors, malfunctions, defects directly caused by service provider's failure to perform the services and additional services in such manner.

6.0 Limitation of Liability

The sole liability of the Service Provider under this agreement shall be to correct any errors, malfunctions, or defects in the system directly caused by the Delta Service Providers failure to perform any services in good and workmanlike manner pursuant to section 4 above. In no event should the Service provider's liability to the customer hereunder exceed the total of the amounts paid to the service provider hereunder by the customer. In no event shall the Delta Service Provider be liable to the customer or any other third party claimant for any indirect, special, punitive, consequential or incidental damages or lost profits arising out of or related to this agreement or the performance or breach thereof, whether based upon a claim or action of contract, warranty, negligence, or strict liability or other tort. Breach of any statutory duty, indemnity or contribution or otherwise, even if the service provider has been advised of the possibility of such damage.

7.0 Termination/Cancellation

This agreement may be terminated or cancelled only upon:

- Written notice by one Party effective as of the effective date thereof if the other Party is in default of any provision of this Agreement and such default is not cured by the defaulting Party within fifteen (15) days after the effective date of said notice from the non-defaulting party, or by the mutual agreement of both Parties.
- Copy of such written notice shall be forwarded to the regulatory agency.

8.0 Miscellaneous Provisions

This agreement is personal in nature and may not be delegated, assigned or transferred by either Party without the prior written consent of the other Party.

The laws of the State of Oregon shall govern the Agreement.

The homeowner shall be responsible for complying with the Delta Ecopod-N Series Installation, Operation & Maintenance Manual provided to them with the purchase of the system.

Any notice or other communication required or permitted to be given under this Agreement shall be in writing and shall be mailed by certified mail, return receipt requested, postage prepaid, addressed to the Parties at the addresses shown on the first page of the Agreement. Any notice or other communication shall be deemed given at the expiration of the second day after the date of deposit in the United States mail. The addresses to which notices or other communications shall be mailed may be changed from time to time by giving written notice to the other Party as provided in this Section.

Value of maintenance contract \$150.00 per year, total of \$300.00 for 2 years included in sale of system. State/County fees of approximately \$50.00 included in this price. Inspection and maintenance of the pump basin and pump apparatus following the Whitewater Treatment System included in this contract. We will observe and record conditions of drain field as per State requirements.

Delta Service Provider

Name

Signature

Oregon Certified Service Provider

Title

Customer

Name(s)

Signature(s)

Title

Mandatory Inspection Sheet Service Contract					
Customers			Configuration One, Two or Three		
A. Maintain 1000 Gallon processing tank			Frequency	Gravity System	Pump Out
1)	Visual inspect for infiltration		Semi-Annual		
2)	Measure sludge and scum		Annual		
3)	Recommend tank pumping when necessary		Semi-Annual		
B. Maintain Delta Product					
1)	Inspect for ponding		Semi-Annual		
2)	Air Vent (intact and clear)		Semi-Annual		
3)	Air unit Operation and clean filter		Semi-Annual		
4)	Check for odor (Sniff)		Semi-Annual		
5)	Check for film (Visual inside tank)		Semi-Annual		
6)	Check for foam(visual inside tank)		Semi-Annual		
C. Maintain disposal field pump basin			Inspect Disposal Field		
1)	Check pump intake		Semi-Annual		
2)	Check float for proper operation		Semi-Annual		
3)	Visually inspect surface for ponding		Semi-Annual		
4)	Check monitoring wells liquid level		Semi-Annual		
5)	Visually Inspect Basin Infiltration		Semi-Annual		
6)	Check Basin still Level		Semi-Annual		
7)	Visually Inspect drain field for ponding		Semi-Annual		

Infiltrator IM™ - and TW™ - Series Septic Tank General Installation Instructions



Before You Begin

Infiltrator Systems' septic tanks must be installed according to state and/or local regulations, which supersede the manufacturer's installation instructions. If unsure of the installation requirements for a specific site, contact the health department or permitting authority.

WARNING: IMPLOSIONS MAY CAUSE SERIOUS INJURY
Follow Infiltrator Systems Inc. vacuum test instructions

Materials and Equipment Needed

- | | |
|--|--|
| <input type="checkbox"/> Infiltrator IM or TW tank | <input type="checkbox"/> Shovel |
| <input type="checkbox"/> Access port lids (included) | <input type="checkbox"/> Level |
| <input type="checkbox"/> 10 screws per lid (included) | <input type="checkbox"/> 5-inch-diameter (125 mm) hole saw (IM tanks) |
| <input type="checkbox"/> Inlet/outlet gaskets (included) | <input type="checkbox"/> 5¼-inch-diameter (133 mm) hole saw (TW-Series only) |
| <input type="checkbox"/> Inlet/outlet tees* | <input type="checkbox"/> Utility knife |
| <input type="checkbox"/> Tape measure | <input type="checkbox"/> PVC pipe glue with primer |
| <input type="checkbox"/> Pipe, risers, etc. | |
| <input type="checkbox"/> Socket wrench | |
| <input type="checkbox"/> Excavator | |

*tee inclusion varies by state/province

Installation Site Selection

1. Avoid installation of the tank in vehicular traffic areas. The tank is designed for non-traffic applications.

2. The maximum vehicle load is a 4,500-pound (20 kN) axle load at a soil cover depth of 6 to 48* inches (150 to 1,200 mm).

*18-inch (450 mm) max. in Florida for Cat. 3 TW and IM-1060 tanks; 48-inch (1,200 mm) max. in Florida for Cat. 4 IM-1060; 36-inch (900 mm) max. in Massachusetts, New Hampshire, North Carolina, and Oregon.

3. The tank shall not be installed where the subsurface water level outside the tank exceeds the height of the outlet pipe saddle. Follow Table 4 guidelines.

Excavating and Preparing the Site

1. Unless buoyancy control measures are required, the excavation width and length should be 12 to 36 inches (300 to 900 mm) larger than the tank on each side. See Infiltrator IM- and TW-Series Septic Tank Buoyancy Control Guidance document, available online at www.infiltratorsystems.com, for specific excavation requirements.

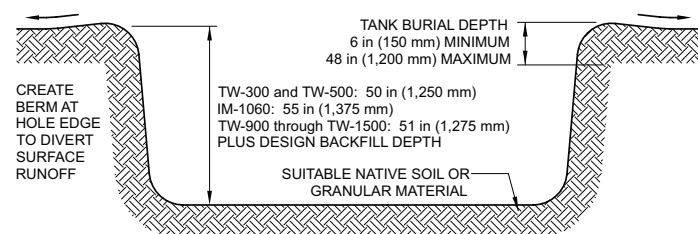
2. Excavate to account for the height of tank. 55 inches (1,375 mm) for the IM-1060, 51 inches (1,275 mm) for the TW-900 through TW-1500, and 50 inches (1,250 mm) for the TW-300 and TW-500. Also account for 4 inches (100 mm) of bedding (if required), and backfill thickness (permissible cover depth is 0.5 to 4 feet (150 to 1,200 mm) of soil).

Note: If the water level outside the tank exceeds the height of the outlet pipe saddle, tank structural integrity may be compromised. Follow Table 4 guidelines.

3. Inspect bottom of excavation to verify suitability of native soil for tank installation. Soils with large, protruding, or sharp stones or other similar objects that may damage the tank are not suitable.

4. The tank may be bed either in suitable native soil (see Backfilling the Tank section) or a minimum 4-inch (100 mm) layer of pea stone, sand, gravel, or other similar material having particles less than 3 inches (75 mm) in diameter.

5. Create a uniform, level bedding surface to ensure that the bottom of the tank is evenly supported at the base of the excavation. Verify that the base of excavation is flat.



Installing the Tank

1. Inspect the tank for damage before installation.
2. If the tank inlet and outlet penetrations are not drilled, drill holes using

the drill points provided at each of the inlet and outlet ports according to the Inlet and Outlet Hole Locations section of this document. The inlet and outlet may be drilled on either the sides or ends of the tank, as required based on applicable codes and site conditions.

Florida, Indiana, Kentucky, Oregon, West Virginia and certain Texas tank inlet/outlet holes are factory drilled.

3. The gaskets supplied with the tank are compatible with Schedule 40 and SDR 35 pipe using a 5-inch-diameter (125 mm) hole saw with IM tanks, and a 5¼-inch-diameter (133 mm) hole saw with TW-Series tanks.

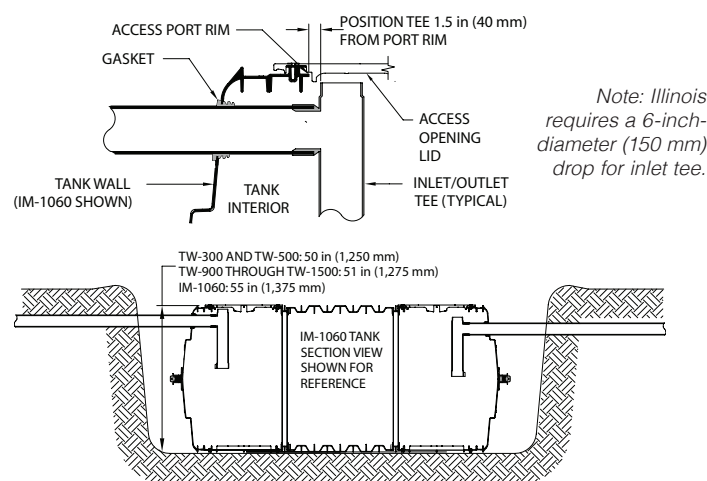
4. Install the rubber gaskets at the inlet and outlet.

5. Using the tank's integral lifting lugs, lower tank into excavation.

6. Slide the inlet and outlet pipes* through the gaskets.

*For North Carolina, the inlet pipe shall be a straight pipe with no tee.

7. Horizontally position the tee 1½ inches (40 mm) from the access port rim as shown in the detail below. This allows the tee to fit into the access port lid.



8. Install lids and risers (see Installing Risers section) as necessary.

Backfilling the Tank

Note: Infiltrator tanks do not require filling with water prior to backfill placement. Water filling is advisable if tank is left in an open excavation that may fill with water.

1. Backfill with suitable native soil. If native soil is unsuitable, replace unsuitable fraction with suitable soil.

2. Suitable soil shall include soil textural classes defined in the United States Department of Agriculture soil triangle. Suitable soil textural classes are based on the tank installation depth, as measured from finished grade to the top of tank.

a). For a tank installation depth of 0.5 to 2.0 feet (150 to 600 mm), suitable soil textures include:

- | | |
|--|--------------------|
| i. Sand | iv. Loam |
| ii. Loamy sand | v. Sandy clay loam |
| iii. Sandy loam | vi. Sandy clay |
| vii. The following, assuming that the sand particle fraction by weight (i.e. % that would be retained on No. 200 sieve, as per ASTM D2487) is greater than 30%: silt loam, clay loam, and clay | |
| viii. The following, assuming that the sand particle fraction by weight (i.e. % that would be retained on No. 200 sieve, as per ASTM D2487) is less than 30% and the soil is shown to be dilatant (refer to Step 5 below for simple dilatancy test to be conducted in the field): silt loam, silt, clay loam, silt clay loam, silty clay, and clay | |

b). For a tank installation depth that is greater than 2.0 feet and up to 4.0 feet (600 to 1,200 mm), suitable soil textures include:

- | | |
|---|--------------------|
| i. Sand | iv. Loam |
| ii. Loamy sand | v. Sandy clay loam |
| iii. Sandy loam | vi. Sandy clay |
| vii. Silt loam, clay loam, and clay having at least a 30% sand particle fraction by weight (i.e. % that would be retained on No. 200 sieve, as per ASTM D2487). | |

3. Backfill should not have stones greater than 3 inches (75 mm) in diameter or excessive clods that do not break apart during placement and compaction. Backfill must be capable of occupying the spaces between the tank ribs.

4. Standard field soil classification methods shall be used to determine the soil textural class.

5. Under most circumstances, the determination of soil dilatancy will not be required. Dilatancy shall be determined in the field using a test that does not require specialized equipment, per ASTM D2488, Section 14.3, and as described below.

a). Mold a ½-inch-diameter (13 mm) soil test specimen in the palm of the hand. The test specimen shall be representative of the prospective tank backfill soil.

b). Mold the test specimen, adding water if necessary, until it has a soft, but not sticky consistency.

c). Smooth the soil ball in the palm of one hand with a spatula or equal.

d). Shake the soil sample by striking the hand vigorously against the other hand approximately 5 times. Do not strike hand in a manner that results in an injury.

e). Immediately following shaking, gently squeeze the soil in the palm of the hand.

f). Repeat shaking test if necessary to evaluate soil.

g). Note whether water appears on the surface of the soil specimen during shaking and squeezing.

i. If water appears on and disappears from the surface of the soil specimen, the soil is dilatant, and is suitable.

ii. If no visible change or only a slight visible change in the soil specimen occurs due to shaking or squeezing, the soil is not dilatant, and is unsuitable.

6. Do not backfill top of tank before sidewalls are completely backfilled.

7. Place backfill around the four sidewalls in a progressive, alternating manner, so that the backfill height along the four sidewalls is maintained within a 12-inch (300 mm) tolerance.

8. Continue to place backfill along the sidewalls in 12-inch (300 mm) lifts. Place backfill between the ribs on the sidewalls such that the space between the ribs is completely filled with soil.

9. Compact backfill material either by hand tamping or mechanical compaction (includes backhoe bucket). Compact each lift prior to placement of next lift. Compact backfill from tank walls to excavation sidewalls.

10. Complete backfilling and grade the area.

11. A minimum 6-inch-thick (150 mm) layer of suitable soil must be placed over the top of the tank. The balance of backfill placed to finish grade above the tank may be either suitable or unsuitable soil.

12. Establish a strong stand of erosion-resistant vegetation.

Note: Grade to prevent the backfilled excavation from filling with surface runoff. If the water level in the backfilled excavation exceeds the height of the outlet pipe saddle, tank structural integrity may be compromised. Follow Table 4 guidelines.

Installing Under Shallow Groundwater Conditions

Buoyancy control measures may be required if the Infiltrator tank is to be installed with less than 18 inches (450 mm) of soil backfill cover, and where the water level outside the tank has the potential to rise 24 inches (600 mm) or more above the elevation of the tank bottom. Otherwise, no control measures are required (see Table 1). The need for buoyancy control measures must be determined based on backfill cover depth and height of water outside of tank above the tank bottom according to the following table. Refer to Infiltrator IM- and TW-Series Septic Tank Buoyancy Control Guidance document for more information.

Water height above tank bottom	Soil cover depth above tank ³		
	6" (min) (150 mm)	12" (300 mm)	18" (450 mm)
Above outlet pipe saddle	Do not install	Do not install	Do not install
36" (900 mm) to outlet pipe saddle ⁴	All models	TW-300/500	None
30" (750 mm) to 36" (900 mm)	All models except IM-1060	TW-300/500	None
24" (600 mm) to 30" (750 mm)	TW-300/500	None	None
Less than 24" (600 mm)	None	None	None

¹ TW-300, TW-500, TW-900, TW-1050, IM-1060, TW-1250, TW-1500.

² See Infiltrator IM- and TW-Series Septic Tank Buoyancy Control Guidance for more information.

³ No controls are required for soil cover depths exceeding 12" (300 mm).

⁴ The tank shall not be installed where the water level outside the tank exceeds the height of the outlet pipe saddle. Follow Table 4 guidelines.

Installing Risers

1. Compatible risers include 24-inch (600 mm) diameter products such as the Infiltrator TW-Riser, EZset by Infiltrator, PolyLok[®], Inc., and Tuf-Tite[®] Corporation, in addition to 24-inch (600 mm) diameter corrugated HDPE and IPEX Ultra Rib[®] PVC pipe. Follow Infiltrator's IM- and TW-Series Septic Tank Riser Connection Guidance.

2. Oregon watertightness testing shall include filling with water at least 2 inches above riser connection, with no more than 1 gallon leakage per 24 hours, per OAR 340-073-0025(3).

Installing Pumps and Related Equipment

Pumps may be supported on a stable, level 16 x 16 inch (400 x 400 mm) platform positioned on the bottom of the tank. Precast concrete block is acceptable pump support material. One 16 x 16 inch block or two 8 x 16 inch (200 mm x 400 mm) side-by-side blocks may be used. The support block(s) should be placed below an access opening and level upon the tank bottom. If two blocks are used, they should be oriented perpendicular to ribs on the tank bottom, if present, for stability.

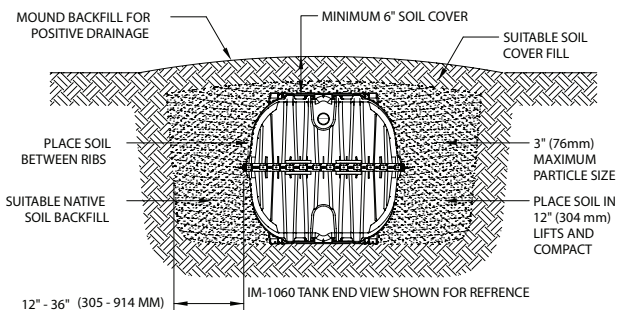
Installation of products such as electrical conduit and wiring, pumps, water level control equipment, valves, siphon equipment, etc. shall be in accordance with the product manufacturer's instructions and compliant with applicable state or local rules and regulations. Appurtenances shall be fastened to the tank riser system and not the tank body or access opening rim. Where possible, appurtenances shall be installed to facilitate maintenance and repair access via the tank access openings.

General Specifications

- Failure to comply with installation instructions may void warranty.
- Prior to ground disturbance, check for subsurface obstructions and utilities in conformance with applicable requirements.
- Operating water temperature shall be less than 100° F (40° C).
- Tanks are not fire resistant. Store away from ignition sources.
- Removal of structural bulkheads is prohibited; removal of locking clips on the IM-1060 mid seam connection is also prohibited.
- Suitable for potable applications only if the tank bearing an NSF/ANSI 61 certification mark, otherwise tank is recommended for use in septic, rainwater/stormwater storage, and pump applications only.
- Infiltrator tanks are designed for installation underground. Contact Infiltrator Systems for above-ground use requirements.



WARNING: IMPLOSIONS MAY CAUSE SERIOUS INJURY
Follow Infiltrator Systems Inc. vacuum test instructions



Short and Long-Term Groundwater Control

It may be necessary to implement groundwater control measures during tank installation. Maintain dry conditions by expanding the excavation to create a short-term groundwater collection sump for temporary placement of a dewatering pump if needed. Long-term groundwater control measures such as underdrains and interceptor trenches may be sensible if the site is amenable to construction of a control system and such systems are not prohibited by regulation or law, and the tank location is not subject to flooding. Properly installed underdrains and groundwater interceptor trenches may prevent the need for tank buoyancy control measures.

Table 2: Infiltrator Tank Nominal Volume Chart

Height ¹		TOTAL LIQUID VOLUME IN TANK AT INDICATED HEIGHT													
		TW-300		TW-500		TW-900		TW-1050		TW-1250		TW-1500		IM-1060	
in	cm	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	3	1	2	2	8	10	37	11	43	14	53	17	64	3	11
2	5	2	9	5	19	22	82	25	95	30	115	37	140	13	49
3	8	5	19	8	30	41	156	48	181	58	218	71	267	28	106
4	10	9	34	13	49	62	236	72	273	87	330	107	404	46	174
5	13	15	57	20	76	84	317	97	368	117	444	143	543	65	246
6	15	21	79	28	106	106	400	122	463	148	558	180	683	86	326
7	18	28	106	37	140	128	483	148	560	178	674	218	825	107	405
8	20	36	136	48	182	150	567	174	657	209	791	256	968	129	488
9	23	43	163	59	223	172	653	200	756	240	910	294	1,112	152	575
10	25	50	189	71	269	195	739	226	855	272	1,029	332	1,257	176	666
11	28	57	216	83	314	218	826	252	956	304	1,149	371	1,404	200	757
12	30	65	246	95	360	242	915	279	1,057	336	1,270	410	1,551	225	852
13	33	72	273	105	397	265	1,004	306	1,160	368	1,393	449	1,700	251	950
14	36	80	303	118	447	289	1,093	334	1,263	400	1,516	489	1,849	277	1,049
15	38	87	329	130	492	313	1,184	361	1,367	433	1,640	528	2,000	303	1,147
16	40	95	360	142	537	337	1,276	389	1,472	466	1,765	569	2,152	330	1,249
17	43	102	386	154	583	361	1,368	417	1,578	500	1,892	609	2,305	357	1,351
18	46	110	416	166	628	386	1,461	445	1,685	533	2,019	650	2,459	384	1,454
19	48	118	447	179	678	411	1,555	474	1,792	567	2,146	690	2,614	411	1,556
20	50	126	477	191	723	436	1,650	502	1,901	601	2,275	732	2,769	438	1,658
21	53	134	507	204	772	462	1,747	532	2,012	636	2,407	774	2,928	465	1,760
22	56	141	534	216	818	488	1,847	562	2,126	671	2,541	816	3,091	493	1,866
23	58	149	564	228	863	515	1,948	592	2,241	708	2,678	860	3,256	521	1,972
24	61	156	590	241	912	542	2,053	624	2,361	745	2,819	905	3,425	549	2,078
25	64	164	621	253	958	569	2,154	654	2,475	781	2,955	948	3,589	577	2,184
26	66	171	647	265	1,003	595	2,251	683	2,587	815	3,086	990	3,747	605	2,290
27	69	178	674	277	1,048	620	2,346	712	2,695	849	3,215	1,031	3,903	633	2,396
28	71	186	704	289	1,094	644	2,439	740	2,802	883	3,342	1,072	4,057	662	2,506
29	74	193	731	300	1,136	669	2,533	769	2,909	916	3,469	1,112	4,210	691	2,616
30	76	200	757	312	1,181	693	2,625	796	3,015	950	3,594	1,152	4,362	719	2,722
31	79	208	787	324	1,226	718	2,717	824	3,120	982	3,719	1,192	4,514	747	2,828
32	81	215	814	336	1,272	741	2,807	852	3,223	1,015	3,842	1,232	4,663	775	2,934
33	84	222	840	347	1,313	765	2,895	878	3,325	1,047	3,964	1,271	4,810	802	3,036
34	86	230	871	359	1,359	788	2,983	905	3,426	1,079	4,084	1,309	4,956	830	3,142
35	89	236	893	370	1,400	811	3,070	931	3,526	1,110	4,203	1,347	5,101	857	3,244
36	91	243	920	382	1,446	834	3,155	957	3,624	1,141	4,320	1,385	5,243	884	3,346
37	94	251	950	393	1,488	856	3,240	983	3,721	1,172	4,436	1,422	5,384	911	3,449
38	97	258	977	404	1,529	877	3,320	1,008	3,814	1,201	4,548	1,458	5,521	938	3,551
39	99	264	999	416	1,575	898	3,398	1,031	3,904	1,230	4,657	1,494	5,654	965	3,653
40	102	271	1,026	427	1,616	920	3,484	1,057	4,003	1,261	4,772	1,532	5,798	992	3,755
41	104	278	1,052	438	1,658	938	3,549	1,078	4,080	1,286	4,869	1,562	5,915	1,018	3,854
42	107	285	1,079	449	1,699	957	3,623	1,100	4,166	1,314	4,972	1,596	6,042	1,044	3,952
43	109	292	1,105	460	1,741	976	3,695	1,123	4,249	1,340	5,074	1,629	6,167	1,069	4,047
44	112	299	1,132	471	1,783	994	3,765	1,144	4,331	1,366	5,172	1,661	6,288	1,094	4,141
45	114	304	1,151	481	1,821	1,011	3,829	1,164	4,406	1,390	5,263	1,690	6,399	1,118	4,232
46	117	310	1,173	490	1,855	1,025	3,878	1,179	4,465	1,410	5,337	1,715	6,492	1,142	4,323
47	119	313	1,185	498	1,885	1,036	3,923	1,193	4,517	1,427	5,402	1,737	6,574	1,165	4,410
48	122	313	1,185	502	1,900	1,045	3,954	1,203	4,553	1,439	5,446	1,750	6,626	1,187	4,493
49	124	313	1,185	504	1,908	1,055	3,994	1,212	4,588	1,448	5,481	1,762	6,669	1,208	4,573
50	127	-	-	-	-	-	-	-	-	-	-	-	-	1,228	4,648
51	130	-	-	-	-	-	-	-	-	-	-	-	-	1,247	4,720
52	132	-	-	-	-	-	-	-	-	-	-	-	-	1,265	4,789
53	135	-	-	-	-	-	-	-	-	-	-	-	-	1,278	4,838
54	137	-	-	-	-	-	-	-	-	-	-	-	-	1,287	4,872

1. Height measured from inside surface at bottom of corrugation in tank.

TW-Series Inlet and Outlet Hole Locations

Drill height markings are provided on the Infiltrator TW-900, TW-1050, TW-1250, and TW-1500 to serve as a guide for inlet and outlet hole locations. Markings "A" (lower) and "B" (upper) are located at the inlet end. Markings "C" (lower), "D" (middle), and "E" (upper) (TW-900 only) are located at the outlet end. Note: holes may be drilled at the end or side inlet and outlet locations. The circular centering symbol next to the marking letter indicates the centerpoint location for the hole saw. The pilot drill bit on the hole saw should be positioned on the centering symbol to properly align the hole saw.

The drill height markings below are provided to set the inlet and outlet invert heights based on state and/or local regulations. The chart below provides the proper inlet and outlet drill points. Note that state, provincial and local regulatory requirements take precedence over the information provided in the table below.

Table 3: Inlet and Outlet Hole Locations

State or Province	Inlet Drill Location	Outlet Drill Location	Invert Drop (in) [mm]	Inlet Invert Height ² (in) [mm]	Outlet Invert Height ² and Liquid Level (in) [mm]
DE, FL, IA, MA, ON	A	D	2 [51]	42 [1,067]	40 [1,016]
AR, CA, CO, CT, ID, IN ¹ , KS, KY ¹ , MO, MT, ND, PA, SD, VT, WV ¹	B	C	3 [76]	42.75 [1,086]	39.75 [1,010]
TX	B	D	2.75 [70]	42.75 [1,086]	40 [1,016]
All Others	A	C	2.25 [57]	42 [1,067]	39.75 [1,010]

Notes:

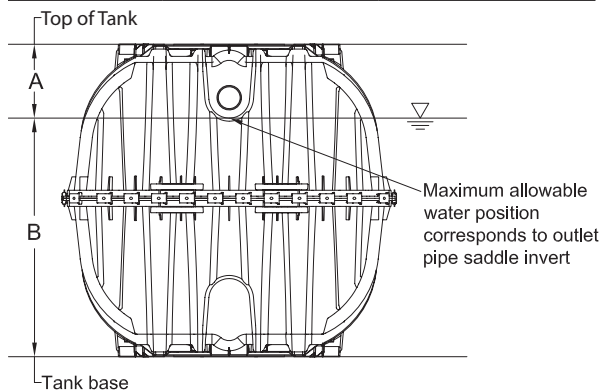
1. Florida, Indiana, Kentucky, Oregon, West Virginia, and certain Texas tanks are factory drilled.
2. Invert heights are measured from the lowest interior surface at the bottom of the tank.
3. Invert heights based on 4-inch-diameter (100 mm) inlet/outlet pipes.

IM-1060 Inlet and Outlet Hole Locations

Drill height markings are provided on the Infiltrator IM-1060 to serve as a guide for inlet and outlet hole locations. The IM-1060 is manufactured to have an end inlet invert height of 47 inches (1,194 mm) above the interior surface of the tank bottom when using the drill height guide markings and 4-inch-diameter (100 mm) pipes. The end outlet invert height is 44 inches (1,118 mm), corresponding to a 3-inch (76 mm) drop from end inlet to end outlet. The side inlets have invert heights of 47.5 inches (1,207 mm), and side outlets have invert heights of 44.5 inches (1,130 mm). This corresponds to a side inlet to side outlet invert drop of 3 inches (76 mm); a side inlet to end outlet invert drop of 3.5 inches (89 mm); and an end inlet to side outlet invert drop of 2.5 inches (64 mm).

Table 4: Maximum Allowable Subsurface Water Elevation

Tank Model	Vertical Distance to Maximum Allowable Water Elevation Outside of Tank	
	A - From Top of Tank	B - From Tank Base
TW-300	13" (330 mm)	36" (900 mm)
TW-500	13" (330 mm)	38" (975 mm)
TW-900	11" (280 mm)	39" (975 mm)
TW-1050	11" (280 mm)	39" (975 mm)
IM-1060	13" (330 mm)	43" (1,075 mm)
TW-1250	11" (280 mm)	39" (975 mm)
TW-1500	11" (280 mm)	39" (975 mm)



INFILTRATOR SYSTEMS, INC. ("Infiltrator")

INFILTRATOR® SEPTIC TANK LIMITED WARRANTY

FIVE (5) YEAR MATERIALS AND WORKMANSHIP LIMITED WARRANTY

(a) This limited warranty is extended to the end user of an Infiltrator Septic Tank. A Septic Tank manufactured by Infiltrator, when installed and operated in accordance with Infiltrator's installation instructions and local regulation by a licensed installer, is warranted to you: (i) against defective materials and workmanship for five (5) years after installation. Infiltrator will, at its option, (i) repair the defective product or (ii) replace the defective materials. Infiltrator's liability specifically excludes the cost of removal and/or installation of the Septic Tank.

(b) In order to exercise its warranty rights, you must notify Infiltrator in writing at its corporate headquarters in Old Saybrook, Connecticut within fifteen (15) days of the alleged defect.

(c) YOUR EXCLUSIVE REMEDY WITH RESPECT TO ANY AND ALL LOSSES OR DAMAGES RESULTING FROM ANY CAUSE WHATSOEVER SHALL BE SPECIFIED IN SUBPARAGRAPH (a) ABOVE. INFILTRATOR SHALL IN NO EVENT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY KIND, HOWEVER OCCASIONED, WHETHER BY NEGLIGENCE OR OTHERWISE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

(d) THIS LIMITED WARRANTY IS THE EXCLUSIVE WARRANTY GIVEN BY INFILTRATOR AND SUPERSEDES ANY PRIOR, CONTRARY, ADDITIONAL, OR SUBSEQUENT REPRESENTATIONS, WHETHER ORAL OR WRITTEN. INFILTRATOR DISCLAIMS AND EXCLUDES TO THE GREATEST EXTENT ALLOWED BY LAW ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, OR STATUTORY, INCLUDING ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY IMPLIED WARRANTIES OTHERWISE ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE. NO PERSON (INCLUDING ANY EMPLOYEE, AGENT, DEALER, OR REPRESENTATIVE) IS AUTHORIZED TO MAKE ANY REPRESENTATION OR WARRANTY CONCERNING THIS PRODUCT, EXCEPT TO REFER YOU TO THIS LIMITED WARRANTY. EXCEPT AS EXPRESSLY SET FORTH HEREIN, THIS WARRANTY IS NOT A WARRANTY OF FUTURE PERFORMANCE, BUT ONLY A WARRANTY TO REPAIR OR REPLACE.

(e) YOU MAY ASSIGN THIS LIMITED WARRANTY TO A SUBSEQUENT PURCHASER OF YOUR HOME.

(f) NO REPRESENTATIVE OF INFILTRATOR HAS THE AUTHORITY TO CHANGE THIS LIMITED WARRANTY IN ANY MANNER WHATSOEVER, OR TO EXTEND THIS LIMITED WARRANTY.

CONDITIONS AND EXCLUSIONS
There are certain conditions or applications over which Infiltrator has no control. Defects or problems as a result of such conditions or applications are not the responsibility of Infiltrator and are NOT covered under this warranty. They include failure to install the Septic Tank in accordance with instructions or applicable regulatory requirements or guidance, altering the Septic Tank contrary to the installation instructions and disposing of chemicals or other materials contrary to normal septic tank usage.

The above represents the Standard Limited Warranty offered by Infiltrator. A limited number of states and counties have different warranty requirements. Any purchaser of a Septic Tank should contact Infiltrator's corporate headquarters in Old Saybrook, Connecticut, prior to such purchase to obtain a copy of the applicable warranty, and should carefully read that warranty prior to the purchase of a Septic Tank.

Distributed By:



INFILTRATOR®
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SALCOR INC.

P. O. Box 1090

Fallbrook, CA 92088-1090

Telephone: (760) 731-0745 Fax: (760) 731-2405

INSTALLATION

MANUAL

UV DISINFECTION UNIT

MODEL 3G

February, 2011

I. INSTALLATION INSTRUCTIONS

WARNING! Improper connection of the appliance grounding conductor can result in the risk of electric shock.

Check with a qualified electrician or service representative if you are in doubt about whether the appliance is properly grounded.

Open and carefully unpack the shipping carton. Check for any damage that may have occurred in shipping. If there are any problems, call *SALCOR INC.* at 760-731-0745 or fax to *SALCOR INC.* at 760-731-2405 and explain the problem(s).

The following list describes the components that are contained in the shipping carton.

1. Riser pipe: Four-inch diameter ABS pipe. The one-inch PVC bubble-wrapped insertion and removal handle containing the UV lamp is packed inside the riser pipe.
2. Disinfection chamber: three-inch diameter ABS pipe with 4-inch inlet and outlet hubs.
3. Disinfection subassembly consisting of an anodized aluminum frame supporting a Teflon ® sleeve containing a pure fused quartz tube. This complete item is packed inside of the three-inch disinfection chamber.
4. One-inch White PVC handle which is used for inserting and removing the disinfection subassembly.
5. Long Life UV lamp packed inside of the PVC handle.
6. Electrical subassembly junction box (rated 6P) with pre wired alarm board, electronic ballast, and the cable supplying power to the UV lamp.
7. Two 4-inch Schedule 40 ABS pipe couplings.
8. Watertight connection(s) for bringing the power and alarm wires into the junction box.

There will be some additional items needed for installation, which are:

1. ABS cement (also multipurpose cement if bonding to PVC pipe)
2. Teflon tape
3. Isopropyl (rubbing) alcohol
4. Glycerin (available from drug stores)
5. Power and Alarm Wires
6. Power and Alarm Wire Watertight Conduit for connecting to the Junction Box
7. Valve Box cover if unit is to be installed above ground

A schematic drawing of the unit is shown in figure 1.

Salcor 3G UV Disinfection Unit

NOTE: Not all dimensions to scale

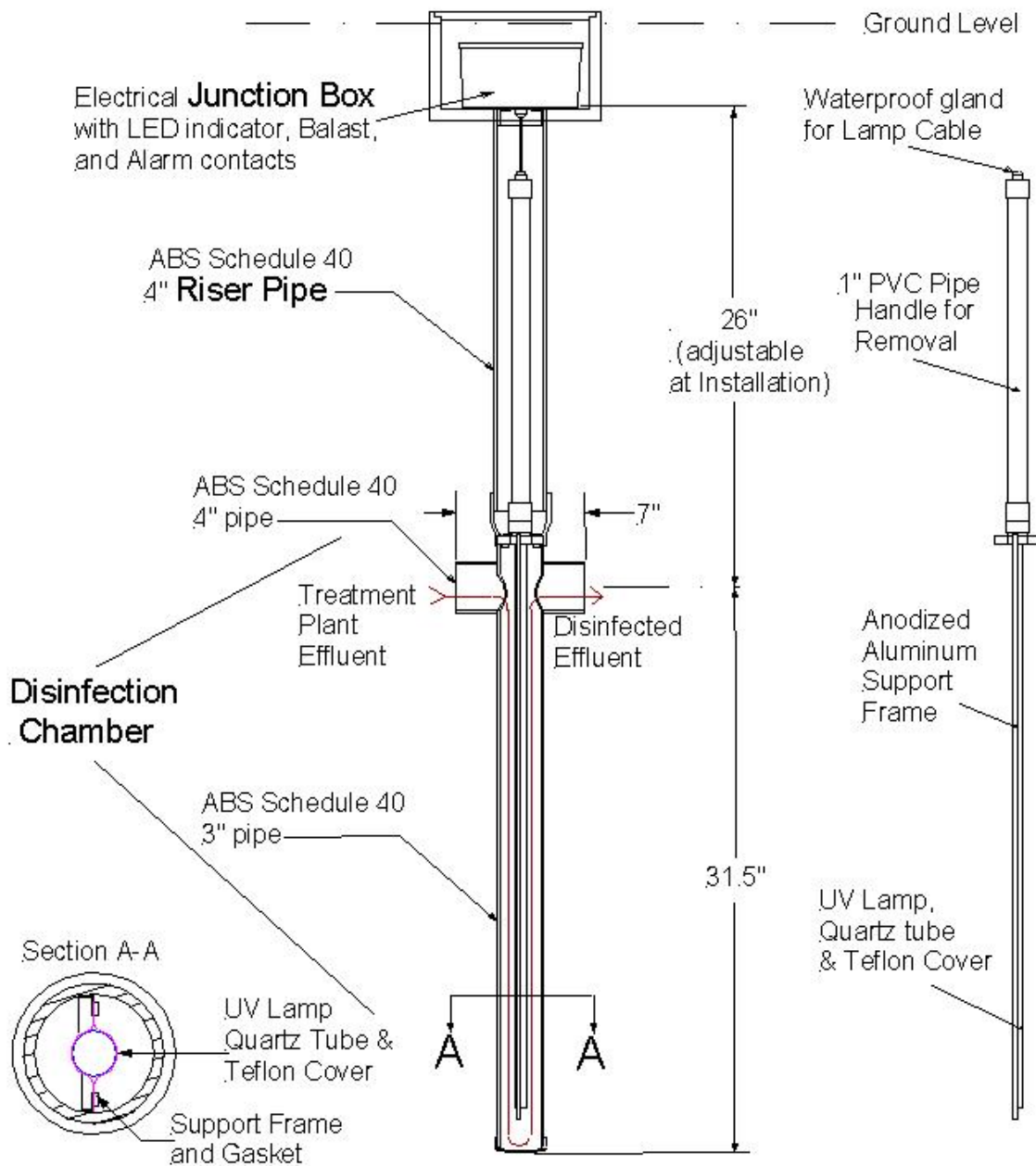


Figure 1

II. TWO INSTALLATION OPTIONS

1. In the ground: couple the 4-inch inlet to the exit pipe of the pretreatment unit, and couple the 4-inch outlet to the drain field pipe. See ***Figure 2***.
2. In a Pump Tank: couple the UV unit inlet pipe to the pretreatment unit exit pipe at the entrance of the pump tank. See ***Figure 3***.

Note: ***Figure 1*** indicates that the electrical junction box should be above ground level. If this should pose a problem with lawn mowers, etc., then the box could be placed below grade in an irrigation or water meter box. Another possibility is to use a hollow artificial rock to cover the junction box.

The Junction box is rated NEMA 6P. To be safe, however, the junction box should be protected from flooding.

For in-pump tank installations, care should be taken to prevent flooding of the junction box.

III. DETAILED INSTALLATION STEPS

1. Install the 3-inch disinfection chamber in place at the site.

Disinfection Chamber.



2. Cut the 4-inch riser pipe and 1-inch lamp handle to meet job needs. Use the 4-inch connection to the pretreatment unit as a reference point. The lamp handle upper end should be approximately six inches from the top of the riser pipe. Bond the riser pipe to the chamber assembly and the second FIP to the handle.

Cut Handle and Riser Pipes.



- Carefully slide the lamp cord through the 1-inch handle pipe. The lamp cord wire with the 4 pin lamp socket connector should extend out about 6 inches from the threaded end of the 1-inch white PVC pipe connector.



Insert Lamp cord wire into Handle pipe.

- Fully connect the 4 pin socket connector of the lamp cord to the UV lamp pins. Then carefully slide the UV lamp into the quartz tube in the frame assembly. **CAUTION!** The Teflon[®] sleeve is very fragile, so handle it with care.



Lamp connector Pins are not square.



Lamp Cord connected and Lamp inserted into frame

- Wrap both of the 1-inch threaded pipe pieces with Teflon[®] tape. Screw the threaded end of the 1-inch lamp handle onto the upper end of the frame and screw the threaded reducer into the top end of the handle pipe. It is important that Teflon[®] tape is used to seal the threads to maintain waterproof operation of the lamp.



Use Teflon Tape to seal

6. Make sure that the UV lamp is bottomed out in the quartz tube.



Tighten Gland.

7. Tighten this gland nut to approximately 22 in/lb to make the UV lamp chamber watertight. **CAUTION!** Do not over tighten!
8. Inspect the Teflon[®] sleeve. If necessary, use a clean soft cloth and isopropyl (rubbing) alcohol to clean and remove any fingerprints. Then lubricate the rubber gaskets with either water or glycerin.
Note: Do not use silicone or petroleum based lubricants on the gaskets.

Inspect and clean assembly



9. Insert the entire frame/handle assembly into the riser/chamber assembly using the white PVC handle. Make sure that the wide part of the subassembly is at right angles to the inlet and outlet pipes, and that the holes on the upper hub of the subassembly are set onto the two pins in the disinfection chamber. The orientation of the frame is very important for successful UV unit operation.



Insert Assembly into Chamber.

10. After tucking the extra lamp cord wire into the riser pipe, place the junction box onto the 4 inch riser pipe and secure it with 2 set screws.
11. Install the Watertight Conduit connector to the side of the Junction Box and secure with the nut on the inside. Use a little RTV on the O-ring to assist in waterproofing.



Install watertight Conduit connector.



Nut on back side of conduit connector

12. Bring the power wires and alarm wires into the junction box via the waterproof conduit connection. Seal the outside of the (NMC) conduit pipe to the waterproof connector with RTV. The *installer* is responsible for ensuring that the external wire conduit connection(s) containing the power and/or alarm wires to the junction box are **WATERTIGHT.**
13. Attach the cable wires to the appropriate terminals on the alarm board. See figure 4. The alarm contacts are compatible with both normally open (N/O) and normally closed (N/C) external alarm circuit units (furnished by others). Note: N/O means the contacts are **OPEN** when there is **NO POWER** to the alarm board relay. The contacts accommodate up to 120 volts and up to 2 Amps. Select the common contact terminal and then the N/C or N/O contact that complies with the receiving alarm panel circuit.
14. Attach the lid to the junction box with 4 screws.
15. The UV unit operates on 120 VAC single-phase (50 or 60 HZ) power and consumes 30 watts. A specific 10-15-amp circuit breaker on the main electrical panel should be used for service to the Model 3G unit.
16. Allow the effluent to start flowing through the unit.
17. Turn on the breaker at the main electrical panel. The LED indicating light on the junction box lid should now be shining, indicating that the unit is operating properly.

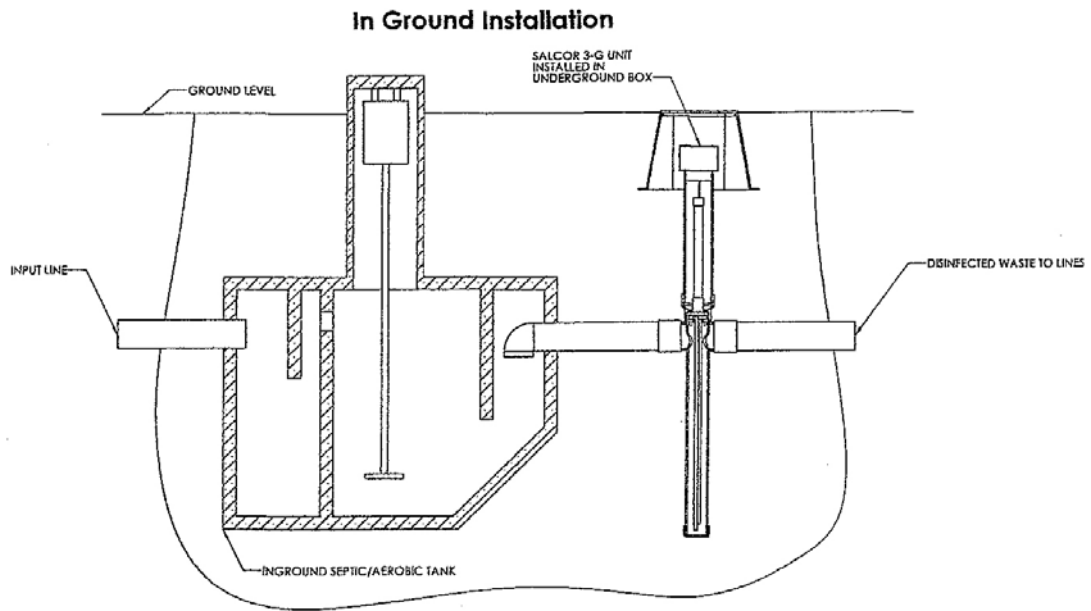


Figure 2

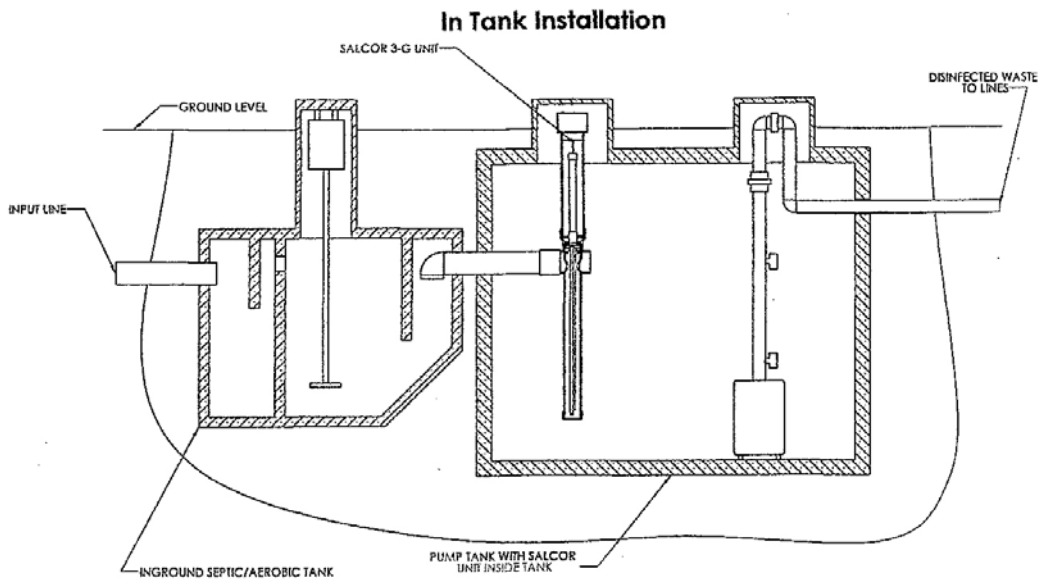


Figure 3

IV. MAINTENANCE AND SERVICE

The Salcor Model 3G UV disinfection unit is designed to provide a long service life. It is recommended that the UV lamp be replaced every two years to insure proper disinfection.

UV LAMP REPLACEMENT PROCEDURE

1. Turn off the dedicated breaker located in the main electrical panel that supplies power to the UV system.
2. Remove the electrical junction box from the UV disinfection chamber and carefully set it aside.
3. Using the power line connected to the UV Lamp Assembly, lift the Assembly out of the disinfection subassembly.
4. Loosen the Lamp Cord Grip at the top of the Lamp Assembly.
5. Disconnect the four pin connector attaching the power line to the UV lamp.
6. Connect the new lamp to the four-pin connector and completely lower the new lamp into the quartz tube of the UV subassembly.
7. Tuck the remaining power line into the riser pipe.
8. Insert the plastic section on the back side of the control center enclosure into the top of the riser pipe.
9. Turn on the dedicated breaker located in the main electrical panel that supplies power to the UV system.

It is recommended that the disinfection subassembly be removed and serviced (cleaned) a minimum of once per year to insure proper effluent disinfection.

TO CLEAN THE TEFLON® SHEATH AND DISINFECTION SUBASSEMBLY

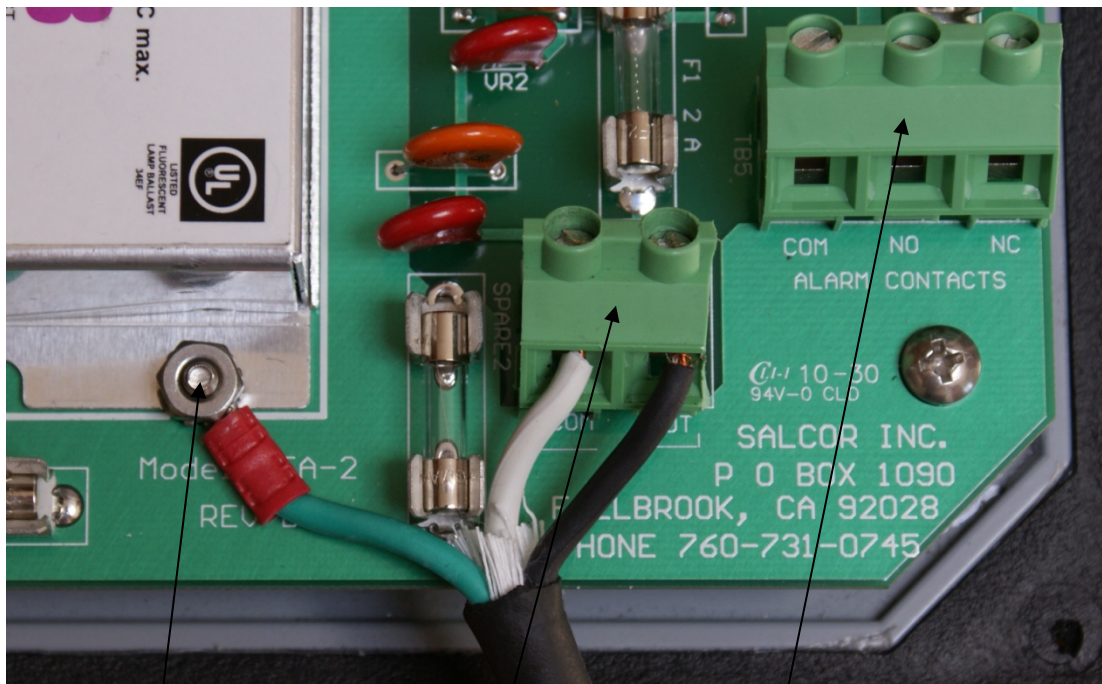
1. Use a soft sponge and detergent to clean the surfaces, especially the Teflon ® sleeve.
2. Use a soft cloth with isopropyl alcohol to remove difficult stains like finger prints and other films.

SALCOR INC.

P.O Box 1090
Fallbrook, Ca. 92088
Telephone: 760 731 0745

V. ELECTRICAL JUNCTION BOX LID

The Ballast and terminal strips are now mounted on the Alarm Board, mounted to the Junction Box Lid.



Grounding Post

Power Inlet Terminal

Alarm Wire terminal block.
Connect alarm wires as needed
for your specific circuit.
N/O and N/C describes the contact
configuration when the
relay has **NO POWER** applied,
or it is **NOT** energized.

Figure 4

Salcor Inc

P.O. Box 1090 Fallbrook, CA 92088-1090
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LIMITED WARRANTY SALCOR MODEL 3G UV DISINFECTION UNIT

This warranty is given by Salcor Inc. for the benefit of the first purchaser of the product to which the warranty applies, the warranty applies only to those parts which are manufactured and delivered by Salcor Inc.

The warranty is that the parts manufactured and delivered by Salcor Inc. will be free from defects in the material or workmanship under normal use and service according to the Installation and Operating Instructions for the time specified below.

In the event of a failure of a part due to such a covered defect, Salcor Inc. will repair or replace, at its option, the defective part at its factory located at 447-D Ammunition Road, Fallbrook, CA 92028. At the option of Salcor Inc, repairs or replacement may be made at the site of equipment installation.

The part must be returned to the factory at the expense of the person claiming the benefit of the warranty unless Salcor Inc. elects to repair or replace the defective part at the installed site.

The warranty shall be for a period of twenty four (24) months after the date of delivery of the product, or the specified service life of the product, whichever period is the shortest. All products for which warranty claims are filed must be returned as provided above to the factory within thirty (30) days from the date of the claimed malfunction in order for this warranty to be effective. The only entity authorized to do any warranty repairs is Salcor Inc.

The repairs or replacement by Salcor Inc. will be accomplished within twenty (20) days from receipt of the defective parts at the factory.

This warranty is expressed in lieu of all other warranties, expressed or implied, including the implied warranty of fitness for a particular purpose, and of all other obligations or liabilities on the part of Salcor Inc., and it neither assumes nor authorizes any other persons to assume for Salcor Inc. any other liabilities in connection with the sale of the products.

This warranty does not cover parts of products made by others, or products or any part thereof which have been repaired or altered, except by Salcor Inc., which shall have been subjected to misuses, negligence, or accident,

Salcor Inc. shall not be liable for damage or delay suffered by the purchaser regardless of whether such damages are general, special, or consequential in nature whether caused by defective material or workmanship, or otherwise, or whether caused by Salcor Inc. negligence, regardless of degree.